UNITED
NATIONS

A

General Assembly

Distr.
GENERAL

A/CONF.167/PC/7
9 July 1993

ORIGINAL: ENGLISH

PREPARATORY COMMITTEE FOR THE
GENERAL CONFERENCE ON THE
SUSTAINABLE DEVELOPMENT OF
SMALL ISLAND DEVELOPING STATES
First session
30 August-10 September 1993
Item 2 (c) of the provisional agenda*

PREPARATIONS FOR THE CONFERENCE: REPORTS FROM REGIONAL TECHNICAL MEETINGS

Report of the Regional Technical Meeting for Indian and Pacific Oceans, Port Vila, Vanuatu, 31 May-4 June 1993

Note by the Secretariat

1. The General Assembly, in its resolution 47/189 of 22 December 1992, stressed the importance of holding regional technical meetings on the sustainable development of small island developing States as a means of preparing substantive contributions to the Conference, and invited relevant regional and subregional bodies to organize such meetings as soon as practicable, preferably in the first half of 1993.

2. Annexed to the present document in the language of submission only is the report of the Regional Technical Meeting for Indian and Pacific Oceans, held at Port Vila, Vanuatu, from 31 May to 4 June 1993. The meeting was organized by the South Pacific Regional Environment Programme.

---

* A/CONF.167/PC/5.

ANNEX

Meeting Report of the Regional Technical Meeting for Indian and Pacific Oceans, held at Port Vila, Vanuatu, 31 May to 4 June 1993*

Copyright ©
South Pacific Regional Environment Programme
The South Pacific Regional Environment Programme authorises the reproduction of this material, whole or in part, provided appropriate aknowledgement is given.

Original text: English

Prepared for publication at:
South Pacific Regional Environment Programme.
PO Box 240
Apia, Western Samoa.

Printed by:
Commercial Print
Apia, Western Samoa.

ISBN: 982-04-0058-9

IP 17/93 - 5C

Printed with financial assistance from the Australian International Development Assistance Bureau (AIDAB)

* Circulated in the languages of submission only.

South Pacific Regional Environment Programme (SPREP)

Regional Technical Meeting for Indian and Pacific Oceans
Port Vila, Vanuatu, 31 May to 4 June, 1993

Input to the Global Conference on the Sustainable Development of Small Island Developing States (GCSDSIDS)

Meeting Report

Official Opening

1. The meeting was officially opened by the Hon. Paul B. Telukluk, Minister for Natural Resources, Energy & Environment, Republic of Vanuatu. In his opening remarks he stressed the importance of this meeting which would provide a valuable guide to the work of the Preparatory Committee for the Global Conference on the Sustainable Development of Small Island Developing Countries (GCSDSIDS) to be held in Barbados in April 1994. He welcomed the participation by representatives of the Indian Ocean and the Caribbean and the international community who were working with the Pacific Island countries to form a partnership towards sustainable development. This meeting would identify specific action that can be taken at national, regional and international levels to address the priority areas for the sustainable development of islands and would ensure that the needs of island countries are responded to appropriately by the new Commission for Sustainable Development to be established within the United Nations.

2. In response to the Minister's opening statements the representative of Tonga, on behalf of participants thanked the Minister for his very pertinent opening remarks and for his warm welcome to Vanuatu. The participants list is attached as Annex 1.

Election of Office Bearers

3. The representative of Vanuatu was elected as Chairperson and the representatives of the Cook Islands and Mauritius were elected as Vice Chairpersons. The representative of the Maldives was elected as meeting rapporteur.

Item 1 : Adoption of Agenda

4. The provisional agenda was adopted with amendments and is attached as Annex 2.

/...

Item 2 : Summary of Preparations for GCSDSIDS and Summary of Recommendations for Consideration

5. The Secretariat summarised preparations for the GCSDSIDS. It was noted that, in accordance with the United Nations General Assembly resolution 47/189, establishing the conference, an organisational session was held 15-16 April 1993. This organisational session agreed to the agenda and guidelines for the work of the Preparatory Committee that will meet in New York, 2-14 August 1993. These agenda and guidelines were also to be used by this meeting, the Regional Technical Meeting for Indian and Pacific Oceans. An Expert Group Meeting for Indian and Pacific Oceans was jointly organised by Australia and SPREP and participation from the Indian Ocean region was assisted by UNEP. Results of the Expert Group provided the basis for background papers for this Regional Technical Meeting.

6. The UN Conference Secretariat clarified issues relating to participation in the GCSDSIDS, inter-agency coordination and how the report of this Regional Technical Meeting would be used in preparation for the conference:

- Participation in the Conference was decided in General Assembly resolutions 46/168 and 47/189. The Secretary-General of the United nations to invite all state members of the United nations and members of specialised agencies and the International Atomic Energy Agency to the Conference. In addition, the organisational session of the Preparatory Committee has requested the General Assembly to approve rules of procedure that would include participation of associate members of regional commissions as observers. Non-governmental organisations that have met the accreditation requirements for the Conference will also be allowed to participate as observers.

- Concerning inter-agency coordination, the UN has established a mechanism in New York to facilitate inter-agency coordination and will be preparing a paper on the UN system-wide response to the sustainable development of small island developing states.

- The report of this meeting will be substantive input to the preparatory process. It will be used by the UN Conference Secretariat in preparing the documentation for the August session of the Preparatory Committee.

7. The Chairman of the Alliance of Small Island States (AOSIS) outlined the preparations being undertaken by island missions in New York and the work that will be required to encourage the active participation of all UN members.

8. A summary of recommendations was presented by the Secretariat. In response to a question from the delegate of France, the SPREP Secretariat explained that budgetary constraints had prevented the Secretariat from providing translation and interpretation services for the meeting. The delegate of France also expressed concern about paragraph 86.

Item 3 : Overview of Special Problems for Island Countries

9. The Head of the ESCAP Pacific Operations Centre (EPOC), Mr. Savenaca Siwatibau, presented an overview of the special problems of island developing states.

10. The meeting decided to recommend to the Preparatory Committee for the Global Conference on the Sustainable Development of Small Island Developing States, Barbados, April 1994, the following as a sound overview of the special problems of island developing states in the Indian and Pacific Oceans.

Overview of the Special Problems of Small Island Developing States

11. As regions of the Indian and Pacific Oceans we can be characterised as islands and groups of islands sharing a common thread of evolutionary and human history. Mostly isolated from each other by hundreds if not thousands of kilometres, our island people have developed unique cultures and attitudes of self-reliance. Many of us occupy some of the smallest habitable land areas on earth and we are vulnerable to natural and human-induced disturbance of both local and global environments. We are also bound by our extreme dependence on climate, physical characteristics and biological resources of sea and land.

12. We share a common aspiration for economic development and improved living standards for our people. Although for thousands of years we have lived a relatively sustainable way of life in our island environments, this was at a fairly low level of material well-being -- a level which we no longer consider adequate. We are strongly committed to maintaining the harmony which has characterised Pacific island peoples' relationship with their environment; we do not want the pursuit of material benefits to undermine our cultural systems and values nor to cause any permanent harm to the land and marine resources which have allowed us to sustain island life for many centuries. Therein lies our dilemma.

13. As on all islands the environmental consequences of ill-conceived development can have catastrophic effects. The recent human history of our region contains examples of entire islands rendered uninhabitable through environmental destruction by human beings. Unsustainable development threatens not only the livelihood of island people but also the islands themselves and the cultures they nurture.

14. These considerations naturally draw us together to seek action on global environmental issues which threaten the countries in our region. Climatic disruption and potential sea level rise are issues of grave concern. Similarly our reliance on our region's biological resources is threatened by the patterns of large-scale exploitation of marine and terrestrial living resources, concern to avoid the catastrophic effects of climate change and to conserve our wealth of species and ecosystems underlies our interest in negotiations towards global conventions on climate change and the protection of biological diversity.

15. Though scattered the island countries of the Indian and Pacific are a close-knit family. Our co-operative approach to regional development is merely an extension of home-grown processes of government which have traditionally placed very high value on co-operation and the consensus approach to problem resolution. SPREP the South Pacific Commission and the South Pacific Forum are all intergovernmental bodies in the region that, through this consensus approach, have been important to our preparations for UNCED.

The Indian and Pacific Ocean Island Economies

16. The Indian and Pacific Ocean islands are widely dispersed over great distances. They are relatively small in size. Papua New Guinea, Solomon Islands, Vanuatu, New Caledonia,

Mauritius and Fiji, are made up of larger islands which are rugged and of volcanic origin. They have rich soils and are well endowed with natural resources.

17. The other SIDS are relatively small; most of them atolls. Some of these islands have good soils, but in the main, natural resource endowment in these groups of islands is severely limited.

18. Minerals and increasingly, hydrocarbons dominate the economy of PNG. Nickel is the largest export of New Caledonia while gold deposits exist in the Solomon Islands, Vanuatu, and Fiji. Agriculture, Forestry, Fisheries, are the most important sectors in most of Melanesia and Indian Ocean islands.

19. Agriculture and fisheries are also the main sources of income and livelihood in the other island countries in the Indian and Pacific Oceans. Tourism is already well developed in a number of island countries. The potential for future tourist growth in all the island countries is good. But they will have to focus upon cooperative and coordinated promotion and infrastructure development if they are to raise their collective share of rapid visitor growth within these two regions.

20. The dispersed archipelagic nature of the SIDS is both a blessing and a cause of difficulty. It has endowed the SIDS with large EEZs the potential of which appears to be enormous. Living resources within these EEZs are already providing welcome additional income to some SIDS. But the commercial utilisation of the non-living resources will take some time following investments in exploration, infrastructure development and commercial production.

21. Distances within the SIDS and between them and their main external markets confront these countries with very high transportation costs. Natural disasters, mainly hurricanes, flooding, and drought, expose them to regular heavy burdens for reparation and maintenance, revenue fluctuations, balance of payments instabilities and attendant foreign exchange supply difficulties. Their economies, like their physical environment, are extremely fragile and vulnerable to external and domestic factors, most of which are beyond their control. This vulnerability stems, in part, from their narrowly-based economies. The SIDS typically rely upon a narrow range of commodities, the prices of which fluctuate with wide amplitudes in the world markets. The level of consumption is high, domestic savings are low or negative and domestic expenditures typically exceed GDP by wide margins. These are reflected in large current account deficits in the balance of payments which are financed largely through aid and, in a number of SIDS, remittances.

Vulnerability

22. Numerous factors account for the extreme vulnerability of the SIDS. These include extreme isolation, heavy dependence upon external trade and finance, high transport costs, exposure to frequent national disasters, and others. Developing economies which are at the same stage of development as the SIDS, but which are less vulnerable, clearly enjoy more secure positions including more trouble-free paths towards the attainment of sustainable development. The SIDS are currently examining a vulnerability index which incorporates annual frequency of hurricanes, the ratio of foreign trade to GDP, the ratio of freight and insurance to export receipts, and national population. Other variables including the frequency of hurricanes and weighted average height above sea level, are being examined and may be included depending upon the availability of the necessary data. The formula used in computing the index is similar to that used in the Human Development Index.

Environment

23. The physical environment of the island countries is extremely fragile. The rapidly rising population in most of these countries is already imposing heavy pressure upon the carrying capacity of the land, marine and water resources. The threat of sea level rise confronts the people of the numerous atoll islands with the possible loss of the means of their livelihood. Waste disposal problems have caused pollution of water supplies, coastal, and river waters and accounts for deterioration in health standards. Excessive logging activities in certain SIDS have resulted in erosion and sedimentation in the rivers and coastal areas. These have in turn caused flooding, deteriorating soil fertility and damage to marine life along the coastal areas.

24. The SIDS fully appreciate that sound environmental management is a precondition to the achievement of sustainable development. In attempting to contain the pace of environmental degradation and entrench sound environmental practices and policies, most SIDS have prepared national environment strategies, (NEMS/NEAP). These NEMS/NEAP are to be incorporated as part of national strategic plans and the environmental dimension of sustainable development will be mainstreamed into the decision-making machinery of those countries.

25. Central to the focus of NEMS/NEAP are:

- the formulation or consolidation of environmental legislation;
- the strengthening of domestic capacity and institutions for the effective formulation and implementation of environmental policies and legislation;
- the preparation and execution of awareness programmes;
- the entrenchment of Environmental Impact Assessment as a precondition to the acceptance and execution of all large projects promoted by the public or private sectors;
- the mainstreaming of environmental concerns into the national planning process of governments.

26. There is the awareness that environmental sustainability will be achieved mainly through national efforts. But such efforts must be supplemented through supportive actions from the international community. To this end the island countries are working closely with each other in order to maximise the flow of supportive assistance which comes in the form of funding and technical expertise.

Climate Change

27. Global warming and sea level rise are the most serious environmental threats to the Pacific region. Island countries are particularly vulnerable, because they include many hundreds of low-lying islands and atolls, house most of their populations and many important economic activities in coastal zones, depend on extremely scarce supplies of potable groundwater, are endowed with very limited areas of arable soil and coastal marine resources, and are at great risk from extreme natural events (for example, cyclones, droughts, earthquakes, volcanic eruptions and tectonic movements).

28. The amount and rate of rise in sea level remains uncertain and this adds to our concern, as does the feeling of helplessness in the face of an environmental impact not of Inidan - Pacific origin. The likelihood of sea level rise is a basic consideration for any development planning in the Pacific atolls and other low-lying islands. Even if protective coral reefs continue to grow upwards at a rate equal to that of the rising seas, the coastline will become more prone to erosion, coastal engineering structures will be threatened, and the construction of new infrastructure near the shore subject to great risk. There will be loss of mangrove forests, of agricultural areas and fuelwood resources. Rising temperature would affect coral mortality, seagrass beds would be lost, and inshore fishing productivity may decline.

29. A particularly serious effect of rising sea level for the atolls is the likely impact on freshwater lenses underlying the atolls. The risk of salt water intrusion will rise as sea level rises, lateral leakage increases, and the lens becomes thinner; already scarce freshwater resources will be lost or at least at very grave risk. As the sea level rises further, salt water will move within reach of pump intakes of groundwater wells, the roots of coconut palms and other tree crops, and of the common atoll staple of pit-grown taro.

Population

30. Fertility and birth rates are high in most SIDS. They are declining very gently in a number of these countries. By contrast, mortality rates consequent upon steady improvements in health services and the social indicators are falling at faster rates. The widening gaps between the birth rates and the mortality rates account for the relatively high natural population growth rates in all the SIDS. The problems associated with high population growth and rural urban migration are aplified due to the smallness and limited land area of SIDS. Clearly, population policies including increased allocations of resources for awareness programmes and distribution of birth control devices through health centres have an important role to play. Over the medium term, enhanced economic and social status of women and their increased participation in the development process will also help in containing the pace of population growth.

Environmental Health

31. Small isolated communities are particularly vulnerable to the rapid spread of infection and to the adverse effects of local environmental degradation. In the Indian and Pacific island countries, environmental health problems are strongly linked to the supply and quality of freshwater and to the introduction of toxins into the general environment. Where there are problems with the disposal of liquid and solid wastes, sanitation is poor, diarrhea and other gastro-intestinal problems are prevalent, particularly where groundwater supplies are polluted; skin and eye diseases such as conjunctivitis and trachoma are common in some countries due to poor personal hygiene and inadequate water supplies.

Education and awareness

32. Nothing has higher priority in the development strategies of Pacific countries than the education and training of our young people and much effort has been directed to that end over the past decade. Literacy is increasing with some countries reporting a primary school enrolment (but not necessarily attendance) of nearly 100 per cent. However, literacy is still far from universal.

33. There are many concerns about the quality of formal education and a frequently expressed need for greatly increased effort on vocational training, apprenticeship programmes and other on-the-job, skill-learning opportunities. Environmental education is one facet of the broader education process and throughout the region there is considerable emphasis on education on environmental issues both within the formal education system and for the general public. However, it has been found that the subject area remains a low priority. The two main problems that have been identified are (a) the motivation of teachers and their attitude towards environmental subject matter and (b) the lack of teachers who are well informed about the environment.

Energy

34. Because of the absence of proven fossil fuel reserves in Indian and Pacific island countries (except PNG), increasing dependency on imported fossil fuel is seen as a major constraint to sustainable economic development. The region's dispersed population and long distances between major population centres make efficient energy production and distribution a fundamental problem.

35. The link between existing forms of energy production, current world consumption levels particularly by the developed countries, and the onset of climate change is clear to the countries of the Indian and Pacific Oceans. When this issue is considered alongside the current regional reliance on fossil fuels, it is not unexpected that over 80 per cent of SIDS placed emphasis on the need for renewable alternatives in their National Reports to UNCED. The development of economically sustainable, renewable and moderate-scale energy production technology, is constrained by the lack of skilled resources and effective technology co-operation.

Land resources

36. For most SIDS, land resources are the basis for the majority of subsistence and commercial production. High population growth rates and the displacement of traditional land management systems by introduced agricultural systems, mining and forest utilisation have placed serious stress on our land resources and the communities which depend on them. Such trends are particularly serious on smaller islands, especially atolls, with limited land areas, poor soils and few other land resources.

Biodiversity

37. The tropical Indian and Pacific regions are renowned for their high levels of species diversity and endemism. Species diversity and endemism appear to be highest on the larger high islands of the western Pacific (New Caledonia, Papua New Guinea, Solomon Islands and Vanuatu), declining east from the continental masses, and south and north away from the equator. Except on the atolls, high levels of endemism occur throughout the region due to the isolated evolution of islands species. The region also has the most extensive coral reef systems in the world, with vast and complex marine ecosystems. The estimated extent of biological diversity, however, is not conclusive for either marine nor terrestrial systems because detailed biological inventories are lacking. It has been estimated that only 10 per cent of tropical species have been described.

38. Our people rely heavily on these biological resources for subsistence and for their economic, social and cultural well-being. The culture of all island societies is inextricably linked to the diversity of living species which characterise the different island environments. This close affinity with the natural environment is shown by the widespread use of many of the biological resources for artisanal and medicinal purposes.

Marine and coastal resources

39. The small size and narrow natural resource base of many Indian and Pacific islands make them particularly vulnerable to inappropriate development and to mismanagement. For some, the ocean is a major part of that resource base, with very high ratios of sea to land (Kiribati has a ratio of over 4000:1). Other than the interior of larger Melanesian islands, the Pacific islands are entirely coastal in nature making land and nearshore systems are intimately linked.

40. The coastal zone supports a variety of human activities, often of a subsistence or traditional nature. The reefs and lagoons are the prime source of subsistence protein for a large proportion of the Pacific and Indian Ocean people. Their high yield potential is reduced in both regions by a wide range of activities, some originating at considerable distance from the coastline:

- overfishing and the use of poisons and explosives when fishing;
- pollution from sewage, fertilisers and biocides, toxic wastes and oil spillage;
- landfill and coastal 'reclamation' for building sites;
- mangrove damage through their use as the garbage dumps, by harvesting for poles and firewood and through improper design of causeways, bund walls, seawalls;
- sedimentation resulting from agriculture, mining, forest utilisation, beach mining, lagoon dredging and construction;
- seepage of contaminated groundwater;
- souveniring of corals and shells by tourists or their sale to tourists; tramping across reefs.

41. Water quality monitoring and trace-back systems are of particular importance in protecting the vulnerable intertidal zone and reefs near urban or industrial areas. However, in general, existing laboratory capability cannot provide the level of monitoring required if analyses are to be in accordance with international standards for water testing. Existing analytical facilities and monitoring efforts are fragmented among a number of sectoral agencies rather than being co-ordinated.

Freshwater Resources

42. Water quality in the high islands is usually acceptable with specific problems occurring in villages in flooded riverine and estuarine environments where water may be poor quality but still potable. On low atolls however, dissolved wastes are not filtered out by the soil because of the low clay content. The low elevation and shallow water table mean that pollution rapidly reaches the groundwater. In some atoll communities where drought may force use of polluted groundwater for drinking and cooking, health problems such as diarrhea and hepatitis are prevalent, with occasional outbreaks of typhoid, and, in Kiribati, Tuvalu and the Marshall Islands, even rare occurrences of cholera.

43. Localised problems with pesticides and herbicides are reported, and are attributed primarily to the incautious disposal of excess biocides close to streams or directly into the water. The use of other chemicals, such as fertilizer, is limited and has not been considered a major problem to date, but the growing tendency to intensive horticultural production will increase potential of pollution from this source.

44. Small coral islands less than 400 metres across have no fresh groundwater. On larger coralline islands, groundwater is drawn from the freshwater lens floating on top of the saltwater. The shape and size of the lens is governed by rainfall volume and periodicity, tides, seepage, hydraulic conductivity and rate of abstraction. The main groundwater concern is the contamination of drinking water supplies from saltwater intrusion, agricultural chemicals or other noxious or hazardous wastes, and, particularly with groundwater on the atolls, by human and animal faeces. The problem is to institute monitoring programmes, and this concern is not confined to water alone.

Wastes

45. The physiographic characteristics of some Indian and Pacific islands, their isolation and oceanic location, and their dependence on a marine and limited terrestrial resource base make them highly vulnerable to contamination by toxic and hazardous wastes and chemicals, and radioactive materials.

46. All island countries of the Indian and Pacific Oceans share a problem of safely disposing of solid and liquid wastes, particularly as a result of urbanisation. Point source pollution from industrial wastes and sewage, inappropriately sited and poorly managed garbage dumps, and disposal of toxic chemicals are significant contributors to marine pollution and coastal degradation. There is also growing concern that toxic and hazardous waste disposal is being brought to the region from developed countries.

47. These issues and constraints must be addressed if we are to achieve sustainable development. Item 5 of this report presents the priorities for action required if we are to make any real progress towards sustainable development.

Item 4 : Building Blocks for Sustainable Development

48. For the information of the meeting, the Secretariat provided an overview of Agenda 21 and national environmental management strategies in the Pacific and Indian Oceans as important building blocks for sustainable development in island countries.

Item 5 : Priority Areas for the Sustainable Development of Islands

49. The meeting decided to endorse and recommend the following to the Preparatory Committee for the Global Conference on the Sustainable Development of Small Island Developing States, as the basis for developing an action programme for small island developing states.

Item 5.1 : Climate Change and Sea Level Rise

Basis for Action

50. SIDS are most vulnerable to Global Climate Change and Sea-Level rise. As most populations, agricultural lands and infrastructure facilities of the SIDS exist on or near the coastal areas, any rise in sea-level will have significant and profound effect on the economies of these countries. Survival of certain low lying countries would be threatened by sea level rise. Inundation of outlying islands and loss of land above the high tide mark may result in loss of exclusive economic rights over extensive areas. Global climate change may change the distribution of zones of upwelling and may affect both subsistence and commercial fisheries production. Further, it may impact on natural and anthropogenic vegetation. Saline intrusion may adversely affect the freshwater resources. All these will have serious implications to sustainable development of SIDS.

51. Climate change, with attendant concerns for sea level rise and their impact on human health and social well-being, are of paramount concern to small island developing states (SIDS) of this region and the world. This was well demonstrated by the statements and actions of the Alliance of Small Island States (AOSIS) during the negotiations for the Framework Convention on Climate Change (FCCC). The nature of the threat was highlighted in the submission to UNCED, *The Pacific Way*, where it was clearly stated that:

> *the emission of greenhouse gases threatens the cultural, economic and physical survival of islands ... Island countries cannot be expected to bear a disproportionate share of the costs associated with global climate change. The link between existing forms of energy production, consumption patterns and climatic change are an integral part of any international basis for action.*

52. SIDS of the Pacific have pledged they would *contribute to international efforts to limit the adverse effects of climate change by controlling* their *own emissions of greenhouse gases and managing our national resources on a sustainable basis*. Monitoring climate variability and change has also been recognised as essential to the future of the region as was the need to implement development strategies which take into account climate change.

53. Concerning action on climate change and sea level rise, it is important to note that *developed countries* now *acknowledge the responsibility they bear in the international pursuit of sustainable development in view of the pressures their societies place on the global environment* (Rio Declaration on Environment and Development: Principle *7*).

54. Agenda 21 considered climate change primarily under Chapters 9, 17 and 18. All programme areas emphasise the need for more information to reduce the uncertainties and to assist the development and implementation of appropriate policies. Under Chapter 9 - Protection of the Atmosphere - concern about climate change, including depletion of the ozone layer and the need for new information is found in the programme area entitled *addressing the uncertainties: improving the scientific basis for decision-making*. The objective of this programme area is *to improve the understanding of processes that influence and are influenced by the Earth's atmosphere on a global, regional and local scale,...and to improve understanding of the economic and social consequences of atmospheric changes and of mitigation and response measures addressing such changes.*

55. Chapter 17 of Agenda 21 *sees the critical uncertainties for the management of the marine environment and climate change* as a priority. Most small islands are considered extremely vulnerable to global warming and sea level rise. Many are now experiencing the more immediate impacts of increasing frequency of storms and cyclones associated with climate change (paragraph 17.126). At the national and regional level, the coordination of research into coastal phenomena related to climate change will be necessary. *In accordance with provisions of the United Nations Convention on the Law of the Sea on marine scientific research,* this includes the exchange of relevant data and information.

56. Under Chapter 18 - Freshwater resources - the *impacts of climate change on water resources* are examined. Again the emphasis is on the collection of more information. The very nature of this topic calls first and foremost for more information about and greater understanding of the threat being faced.

57. There are a number of activities in the Indian and Pacific Oceans region which seek to reduce the uncertainties surrounding climate variability and change and sea level rise. These include:

- the assessment of island vulnerability to accelerated sea level rise;
- TOGA-COARE oceanographic research programme;
- SOPAC Coastal Programme;
- the monitoring of climate change impacts on water resources; and
- the South Pacific Sea Level and Climate Monitoring Project.

58. Other activities are underway within the SPREP climate change programme, Intergovernmental Panel on Climate Change (IPCC), and World Meteorological Organisation (WMO), including:

- the development of integrated coastal zone plans; and
- implementation of recommendations from *The Changing Climate in Paradise*;

59. The Framework Convention on Climate Change (FCCC) has been signed by 17 SIDS within Indian-Pacific and ratified by the Comoros, Fiji, Kiribati, Madgascar, Maldives, Marshall Islands, Mauritius, Papua New Guinea, Seychelles and Vanuatu. Once in force it is expected that the FCCC will make a significant contribution to reducing the threat of climate change as well as mitigating and assisting countries to adapt to the impacts of climate change and sea level rise. Specific action referred to within the FCCC that is of direct relevance to the sustainable development of small island developing states includes:

- the promotion of sustainable management, conservation and enhancement of coastal ecosystems; and
- the development of integrated plans for coastal zone management.

60. The FCCC does not contain targets and timetables for the reduction of carbon dioxide and other greenhouse gas emissions and these are seen by SIDS as essential to address climate change in any meaningful way. Renewable energy resources are also seen in the region as having a central role in mitigating the adverse impacts of climate change, as is the development and dissemination of sound and efficient energy technologies. These issues can be addressed through elaboration of the Convention.

61. To make effective use of the FCCC and to build effectively on efforts to reduce uncertainty and develop appropriate response strategies, the following national, regional and international actions are recommended.

National Action

62. National action and policies concerning climate change and sea level rise shall be based on those priorities identified, for example, in National Environmental Management Strategies in the Pacific, including:

- early ratification of the Framework Convention on Climate Change, the Montreal Protocol, its amendments, and other related legal instruments;
- promotion more efficient use of energy resources in their development planning and use appropriate methods to minimse adverse effects of climate change on their sustainable development;
- taking account of the latest scenarios for climate change and sea level rise into development planning;
- improving understanding at political and public levels of the potential impacts of climatic changes;
- increased participation in the research, assessment and monitoring of climatic impacts and the development of response strategies, including oceanographic and atmospheric monitoring programmes, and to participate in international discussions of these issues;
- developing comprehensive coastal zone management programmes;
- implementing necessary adaptive measures to minimise impact of climate change and sea-level rise.

Regional Action

63. On the basis of national priorities develop regional approaches to:

- monitor climate variability and change and sea level rise through existing programmes and projects;
- assess the impacts of climate change on fish stocks, freshwater, agricultural production, including pests;

64. Provide technical assistance to build endogenous capacity through:

- assistance to countries considering ratification of the FCCC and assistance to countries which have ratified the convention and assumed their major responsibilities;
- assistance to regional institutions in training with monitoring and assessment of causes and impacts of climate change;
- catalysing support for the development of national climate change programmes;
- quantifying greenhouse gas sources and sinks;
- implementation of relevant aspects of SPREP's Climate Change Programme and WMO's *Changing Climate in Paradise*.

International Action

65. The international community should:

- implement immediately the prompt start resolution agreed to by the Intergovernmental Negotiating Committee for the Framework Convention on Climate Change;
- provide improved access to financial resources for the development and implementation of response adaptation strategies recognising the specific vulnerabilities and disproportionate cost borne by SIDS;
- where appropriate, channel financial resources for regional action through the relevant regional organisation;
- provide access to environmentally sound and energy efficient technology to assist island countries conserve energy and reduce emissions of greenhouse gases;
- develop an effective mechanism which ensures that any reforestation carbon off-set scheme genuinely contributes to the improvement of the overall carbon balance, and is not aimed at justifying the continued unabated emission of gases;
- provide improved access to information from the activities carried out to reduce uncertainties of climate change;
- support activities of relevant international and regional organisations and agencies in the areas of:

  (a) climate services for sustainable development,
  (b) new frontiers for climate services and predictions,
  (c) dedicated observations of the climate system,
  (d) studies of climate impact assessments and adaptive response strategies to reduce vulnerability,
  (e) develop comprehensive coastal zone management programmes,
  (f) assess the vulnerability and identify coastal areas at risk to accelerated sea level rise,
  (g) strengthen emergency preparedness and coastal zone response resources.

- facilitate attendance by representatives of SIDS to meetings of the IPCC and the Intergovernmental Negotiating Committee (INC) to ensure that SIDS' concerns are taken into account.

Item 5.2 : Natural and Environmental Disaster Preparedness

Basis for Action

66. Small island developing states (SIDS) throughout Indian and Pacific Oceans are frequently subjected to extremely damaging natural disasters primarily in the form of catastrophic cyclones, volcanic eruptions, and earthquakes but also in some islands, storm surges, landslides, extended droughts, and extensive floods. For those affected, these natural disasters the economic, social and environmental consequences can be severe and long-lasting. Due to climate change such events, including drought, are perceived to be occurring in increasing frequency and intensity and small developing states will need to consider these issues. These natural disasters are of special concern to SIDS because of the size of the islands and their economies and the narrow resource base, which makes SIDS particularly vulnerable to natural hazards.

67. The United Nations have proclaimed the 1990s as the "International Decade for Natural Disaster Reduction." This calls for a concerted global effort to reduce the impact of natural disasters as a contribution to sustainable development.

68. Because insect pests and diseases, and their natural controls, are extremely sensitive to small changes in temperature and other climatic factors, it is believed that an early visible sign of climate change will be increased numbers and activity of insect pests and disease pathogenicity. The potential for disaster from outbreaks of exotic diseases and insect pests will also be increased as trade and transportation in the region increases. Climate change and increasing movement of goods will thus call for more vigilant quarantine controls.

69. In addition to natural disasters, the risks to the environment, and ultimately development, posed by the transportation of oil, wastes and other cargo through the region are also a concern. Although the South Pacific region is not part of the major global network of oil transportation routes, the risk of a major oil spill is increasing as the number of tankers delivering oil supplies to the region increase. A concerted effort is being made to improve the Pacific's capacity to handle such an emergency.

70. On the other hand, in the Indian Ocean area some 225 oil tankers traverse the east coast of the African continent daily and these represent a substantial danger and ecological disaster of mammoth magnitude. It is imperative that Indian Ocean islands have a regional oil spill emergency response centre.

71. A *Strategy for the Protection of the Marine Environment in the South Pacific* has been developed by SPREP, the International Maritime Organisation (IMO), the Forum Secretariat and Australian Marine Safety Association (AMSA). The Strategy aims to strengthen the capacity of countries and provide a regional framework for the protection of this regional resource. The main concerns that are addressed by the strategy are:

- operational discharges of shipping activities;

- marine pollution and emergency response;

- waste disposal at sea;
- port environments;
- baseline information and pollution problem identification and assessment;
- legal and institutional aspects.

72. The Strategy specifically deals with contingency planning and response to spills of oil and other material under dot points one and two above. Spills of this nature are potentially very damaging to island environments and economies including those heavily reliant on tourism and the development of coastal resources. These issues were dealt with under Chapter 17(b) of Agenda 21 which emphasised the need for stricter international regulations to reduce the risks and accidents from cargo ships.

73. There is an East Africa Regional Seas Convention for an area that covers the East African coast as well as the Indian Ocean islands which has not as yet been ratified by all parties. The following are countries which intend eventually to be parties to the Convention; namely, Kenya, Djibouti, Tanzania, Mozambique, Mauritius, Seychelles, Reunion, Comoros and Madagacar. In this Convention, the main actions identified are:

(i) capacity building through professional training for better coastal zone management, including the use of G.I.S.

(ii) Preparation of a map of environmentally sensitive zones for each of the islands, with proposed emergency response action plans.

The proposed South Asian Regional Seas Programme is to deal with these type of issues in the South Asian Region.

74. The following action is proposed concerning natural and environmental disaster preparedness in SIDS of Indian and Pacific Oceans.

National Action

75. National action to improve natural and environmental disaster preparedness will be based on national priorities, as expressed by their respective Disaster Committees, national plans, and National Environmental Management Strategies, and include:

- strengthening the capacity of local broadcasting to assist remote atolls in the country and the neighbouring countries during disaster events;
- determination of the adequacy of port reception facilities and the development of a programme for their construction and management;
- strengthening of quarantine control facilities and measures;
- development of an education and awareness programme for the public and fishing industry regarding waste discharges (plastics, nets, sump oil, etc);

- provide training in marine, terrestrial and atmospheric pollution response skills. Renewed efforts will be made to involve the industry in response planning and exercises;

- strengthening cultural and traditional systems that improve the resilience of local communities to disaster events.

- strengthening and expanding the role of national disaster management organisations to mitigate, prepare for and respond to the increasing range and frequency of natural and environmental disasters;

- integration of natural disaster considerations into development planning on the basis of assessment of natural hazards and the vulnerability of communities. This includes the development of measures to mitigate natural disasters such as building standards and the review of the impact of development activities on the vulnerability of communities;

- ascertain what disaster preparedness resources are currently available within the region and international community and where appropriate utilise these resources for the development of national preparedness plans and community awareness programmes;

- development of national disaster contingency plans to include, inter alia, the provision of shelters, evacuation strategies, application of building standards and early warning systems.

Regional Action

76. Development of regional approaches to environmental disaster preparedness should include:

- Implementation of the relevant aspects of the *Regional Strategy for the Protection of the Marine Environment in the South Pacific*, in particular:

  - preparation of a publication complimentary to the South Pacific Maritime Code, embracing MARPOL 73/78, CLC, LDC, INTERVENTION, FUND and the Salvage Convention;

  - development of oil spill contingency plans and activities consistent with the Regional Strategy for the protection of the marine environment;

  - survey of shipping activities, both inter- and intra-island, involving the shipping industry;

  - IMO, together with SPREP and AMSA will ensure that combined equipment assessment and review of existing draft national contingency plans will be undertaken as well as finalise and exercise a regional contingency plan and endorsed training programme;

  - continuation of the biennial regional workshop on oil spill response organised jointly by SPREP, IMO and AMSA;

  - continuation of the biennial regional seminar for scientific support coordinators organised jointly by SPREP, IMO and AMSA.

- development of an equivalent strategy relevant to the SIDS of the Indian Oceans;
- development of a regional approach to the purchase and storage of disaster and oil containment equipment;
- development of regional quarantine support services, to assist countries maintain the integrity and productivity of their islands;
- assessing the impact of climate change on the frequency and intensity of natural disasters;
- integrating natural disaster considerations in regional development initiatives based on the assessment of hazards and vulnerabilities of countries and communities;
- cooperation and sharing of information on natural disasters, and their mitigation, preparedness and response;
- establishing special back-up broadcasting facilities in disaster free zones to disseminate information during serious disasters when main broadcasting stations are inoperable;
- through regional organisation awareness programmes promote disaster mitigation initiatives.

77. Provide technical assistance to build endogenous capacity in disaster management through:

- Assistance to disaster prone countries;
- Catalyzing support for the development of national disaster mitigation strategies;
- Development of methods and options for disaster mitigation.

International Action

78. International action, based on the national priorities of SIDS, should include:

- improved access to financial and technical resources to assist SIDS take action to reduce the impacts of natural disasters, improve disaster preparedness and integrate natural disaster considerations in development planning;
- improved access to technology and relevant training to assist with hazard and risk assessment and early warning for cyclones to national disaster management organization and regional and national meteorological organizations through WMO and UN-DHA;
- improved access to technology and relevant training to assist with the protection of islands from environmental disasters consistent with national and regional strategies for the protection of the marine environment;
- improved access to available disaster mitigation and preparedness resources, including institutional strengthening programmes, monitoring programmes, infrastructure codes etc;
- strengthening of WMO and UNDHA as a mechanism to provide training to build endogenous capacity of islands and to prepare for and respond to natural disasters and to provide advice concerning early warning systems development and disaster management.

79. Concerning the shipment of wastes and potentially hazardous substances through EEZs of SIDS in this region the international community should:

- provide access to all relevant information, including shipping routes and cargo.

Item 5.3 : Environmentally Sound Management of Waste and Toxic Substances

Basis for Action

80. The prevention of pollution and management of waste are critical issues for island countries. Islands, and their surrounding marine systems, are extremely vulnerable to pollution from toxic substances, hazardous and solid wastes. *The Pacific Way* recognised that *activities such as the movement and storage of these substances are of particular concern. These activities, combined with a growing volume of wastes, particularly solid and liquid wastes, associated with current forms of economic development and increases in population, threaten the health and welfare of island peoples and the natural resources they depend upon for subsistence and economic development.* This is true for all SIDS of the Indian and Pacific Oceans.

81. Wastes in SIDS tend to be highly visible but due to limited capacity to monitor the waste stream, the true extent of the problem remains poorly understood. For SIDS, the disposal of wastes is a serious constraint to sustainable development. Solid wastes, including sewage, unless properly managed can have significant health effects through contamination of ground water and lagoon areas. Limited land area makes the option of landfill disposal unsustainable in the long term. Incineration, while reducing the volume of wastes, is prohibitive in terms of costs and still requires disposal of ash containing potentially hazardous substances in high concentration.

82. Given that long term disposal options are limits, SIDS will need to look for ways of minimising wastes or converting wastes, such as sewage, into a resource (eg. fertiliser for agriculture). This will include action ranging from limiting imports of non-biodegradable and hazardous substances to changing community attitudes to the disposal and use of sewage. In the short term, existing wastes require effective disposal but, at the same time, incentives to continue waste generation should be avoided.

83. Agenda 21 deals with the issue of wastes in three separate chapters covering hazardous (chapter 20), solid (chapter 21) and radioactive (chapter 22). The response by leaders at the 23rd South Pacific Forum to the hazardous waste elements of Agenda 21 was that the emphasis was placed on disposal rather than pollution prevention or waste minimisation. The use of minimisation to reduce waste was given greater attention under the chapter on solid waste.

84. The urgency to find solutions to the waste issues facing islands has been highlighted in National Environmental Management Strategies of the Pacific and National Environmental Action Plans of the Indian Ocean.

85. The need for solutions is central to the SPREP Action Plan, SPREP Convention and other international conventions such as the London Convention. To date, effort in this area has responded to specific needs on an *ad hoc* basis. Although environmentally sound management of waste is a national priority for most island countries, they and the region, often lack the capacity to respond effectively. The magnitude of the problem now requires a coordinated approach to the

prevention of pollution across the region and the development of in-country skills and expertise in the area of waste management and monitoring.

86. In terms of radioactive waste, the history of atmospheric and underground nuclear tests in the Pacific region should be recognised. These tests have, and continue to be, opposed by countries of the Pacific. The current moratorium on nuclear testing in the region has been welcomed and it is hoped that this moratorium will remain in force as an integral part of sustainable development of Pacific island countries.

87. Ongoing activities that are attempting to address this issue in the Pacific include the development of a Pollution Prevention Programme by SPREP. Papua New Guinea has also proposed the development of a Regional Convention on the Ban of the Import into the South Pacific and the Control of Transboundary Movement and Management of Hazardous Wastes within the South Pacific Region. This is being considered by the South Pacific Forum and has been technically evaluated by SPREP. Indian Ocean SIDS are parties to the Basel and Bamako Convention and have laws in place to regulate the transboundary movement of hazardous wastes.

88. *Concern ... for the control on the importation, storage, sale, safe use and disposal of ... biocides* is of particular importance. *Pacific countries have considerable scope for strengthening their administrative arrangements in this area. However, a fundamental requirement rarely met is for the labels on biocides to be printed in the main local or common language, or for the distribution with the product of local language leaflets at the point of sale.* Agenda 21 deals with toxic substances in chapter 19 where it states:

> *Two of the major problems, particularly in developing countries, are (a) lack of sufficient scientific information for the assessment of risks entailed by the use of a great number of chemicals, and (b) lack of resources for assessment of chemicals for which data are at hand.*

89. Chapter 19 also highlights *risk reduction* which *can sometimes be achieved by using other chemicals or even non-chemical technologies. The classic example of risk reduction is the substitution of harmless or less harmful substances for harmful ones. In the agricultural area, integrated pest management, including the use of biological control agents as alternatives to toxic pesticides, is one approach to risk reduction.*

National Action

90. National action and policies for environment and development planning at a national level will be based on the priorities and projects detailed by SIDS, for example in National Environmental Management Strategies, and include:

- ratification and implementation of relevant conventions, including the Basel Convention, the London Convention and the SPREP Convention and related Protocols;
- development of fiscal and policy incentives and other measures to encourage appropriate imports and local products with low waste or with degradable waste content;
- development of criteria for the restriction of imports which contain non-biodegradable or hazardous wastes.

91. Measures for enhancing endogenous capacity will include:

- drafting and implementation of appropriate legislative and regulatory measures for the reduction, prevention, control and monitoring of pollution from all sources and for the safe and efficient management of toxic, hazardous and solid wastes, including sewage and industrial effluent, together with proper management of disposal sites;

- support for public awareness and education campaigns designed to gain local recognition of the need to control wastes at the source, the value of reuse and recycling, of appropriate packaging, and of the possibilities to convert wastes to resources in culturally appropriate ways;

- establishment or strengthening of institutions and services to monitor the types and quantities of wastes, in particular land based sources of marine pollution from sewage and household waste;

- development of targetted waste and recycling strategies.

Regional Action

92. The development of regional approaches to pollution prevention and the environmentally sound management of waste will include:

- a regional pollution prevention programme, including a framework for environmentally sound management of wastes to:

  - *motivate* all sectors of society to commit themselves to pollution prevention,

  - provide *information* to enable pollution prevention, through, for example, a computerised information service or bulletin board providing information on products, processes and alternatives,

  - *support* the development, implementation and ongoing evaluation and improvement of pollution prevention programmes,

  - *monitor* the effectiveness of programme activities and,

  - *protect* the marine environment in conjunction with the regional strategies eg. the Strategy for the Protection of the Marine Environment in the Pacific.

  This will include the development of Regional Centres for Pollution Prevention, the use of demonstration projects, workshops and multi-media presentations tailored to specific groups, the use of economic incentives to further pollution prevention and waste management, relevant legislation, a coordinated and focused monitoring Programme and the development of Waste Management and Prevention Trust Funds. A Regional Convention on the Ban of the Import into the South Pacific and the Control of Transboundary Movement and Management of Hazardous Wastes within the South Pacific Region is currently under consideration.

- a pesticide and heavy metal monitoring programme to establish baseline conditions and identify areas of environmental concern;

- the removal and disposal of existing hazardous wastes, such as PCB's with the technical assistance of developed countries;

- the co-ordination of efforts for the management of recyclable wastes.

93. Technical cooperation for capacity building will be developed under Pollution Prevention Programmes and should include the:

- generation and dissemination of clear information on the sources, levels, amounts, kinds, trends and effects of pollution and waste;

- strengthening the capabilities of national and regional institutions to carry out pollution monitoring and research, and to formulate and apply pollution control and abatement measures;

- provision of technical, legal, administrative and financial resources for the adoption of clean production technologies as well as for the prevention of pollution and proper management of wastes;

International Action

94. To assist SIDS prevent pollution and manage wastes in an environmentally sound manner, the international community should:

- accept the right of SIDS to regulate, restrict and/or ban the importation of products containing non-biodegradable and/or hazardous substances;

- ensure that SIDS are given adequate information to assist them with their decision-making;

- ensure that any amendments to the London Convention take into account the interests and capacities of SIDS.

95. Access to financial resources for pollution prevention and the environmentally sound management of wastes should focus on:

- the provision of support to Pollution Prevention Programmes, including Waste Management and Prevention Trust Funds.

96. Access to environmentally sound and energy efficient technology, including delivery mechanisms, will include:

- demonstration projects through Regional Pollution Prevention Programmes, eg. bioconversion technology.

97. Resources for endogenous capacity building should:

- assist the development of workshops and multi-media presentations tailored to specific groups;

- provide economic incentives to further pollution prevention and waste management;

- assist the implementation of monitoring programmes, and production of relevant legislation.

Item 5.4 : Coastal and Marine Resources

Basis for Action

98. Recognising the importance of coastal and marine resources for achieving their development objectives, many island countries in the Indian and Pacific Oceans have in recent years introduced measures aimed at achieving a more effective and sustainable management of these resources. National environmental management strategies (or their equivalent) prepared in the region give a strong emphasis to the formulation and implementation of integrated programmes for coastal and marine resources as a basis for sustainable growth. This is consistent with a number of global initiatives, notably Agenda 21 (Chapter 17 - Protecting and Managing the Oceans) and the Framework Convention on Climate Change (FCCC).

99. The importance of coastal and marine resources for the island states of the Indian and Pacific Oceans cannot be over-emphasized. Except for PNG and Madagascar, their small size and insularity makes these SIDS effectively coastal entities. A large proportion of the population depends on these resources for their livelihood - both cash and subsistence.

100. The establishment of the 200 mile EEZ created the largest and commercially most valuable fishery resource in the region, that of the tunas, provides a significant potential for future development. The cooperation so necessary to the conservation and management of the pelagic resources of the region should best be provided through institutional frameworks which are specifically appropriate to the region.

101. The region has participated in the international debate that has so far taken place with respect to the rights and responsibilities of fishing nations and coastal states on high seas resource issues. This debate commenced with the driftnet issue in the late 1980s. Recognising that new and improved mechanisms are required if the use of high seas resources, particularly migratory species, is to be sustained and the resources conserved, Pacific Ocean island countries have been extremely active in international attempts to develop guiding principles for fishing activities on the high seas based on the 1982 United Nations Law of the Sea Convention.

102. Management programmes designed to achieve ecologically sustainable utilisation of coastal and marine resources - supported by regional infrastructure and the global community - are a major challenge. Past neglect is witnessed by cases of over-exploitation of reefs and lagoons, destruction of coral reef and mangrove ecosystems, indiscriminate sand mining, use of explosives and poisons, and poor siting of industrial enterprises such as tourist hotels. The restricted range of coastal non-marine species presents additional challenge to the management of coastal and marine resources.

103. Lack of an integrated approach has resulted in escalating conflict in the use of coastal zones, coastal degradation and destruction of marine life. In many cases, such abuses have been exacerbated by the effects of natural hazards such as cyclones, storm surges and abnormal high tides. Problems also arise where inappropriate approaches to resource use impact adversely on sustainable traditional management systems.

104. Action programmes - such as those established under the framework of NEMS/NEAPS - which aim to promote the sustainability of coastal and marine resources must be vigorously pursued. These programmes should be linked closely to action programmes designed to address biodiversity conservation, climate change, waste management, tourism and freshwater resources. In such efforts, island states will need adequate and effective support from regional organisations and from international agencies.

National Action

105. National action and policies to promote integrated coastal and marine management programmes call for initiatives to:

- ratify relevant regional and international conventions, including the SPREP, Apia, Wellington and Tarawa Conventions;
- participate in other relevant meetings including the UN Intergovernmental Conference on Straddling Fish Stocks and Highly Migratory Fish Stocks, and the World Coast Conference.
- devise (where they do not yet exist) and implement national strategies and programmes (e.g. NEMS/NEAP) for the sustainable management, conservation and enhancement of coastal resources, including legislative, institutional strengthening and public awareness programmes;
- establish new institutional and administrative arrangements, where necessary, for the development of integrated coastal zone management plans and their implementation;
- provide training and awareness programmes for the managers (government and local communities) of coastal resources;
- take into account the need to provide sustainable livelihoods and development opportunities in the coastal zone;
- strengthen national capabilities for sustainable harvesting and processing of pelagic fisheries resources;
- support the development of regionally applicable mechanisms for the management of high seas resources;
- combat unsustainable fishing and related practices, including the use of environmentally inappropriate fishing gear;
- document and apply traditional knowledge and management practices which are ecologically sound;
- identify threatened marine species of importance, promote restocking programmes and develop marine protected areas;
- safeguard biodiversity values against the introduction of undesirable species through rigorous enforcement of quarantine controls;

- ensure adequate national financial support for coastal and marine management activities;
- participate in negotiations for international agreements on marine issues.

Regional Action

106. Recognising the importance of regional cooperation in support of national efforts, action is needed to:

- strengthen the capacities of regional organisations and institutions to carry out their mandate in the coastal and marine areas;
- develop the capacity of regional organisations to research commercial and non-commercial fisheries with a view to sustainable harvesting and utilisation;
- increase the capacity of these organisations to assist island countries to realise NEMS/NEAPS and related goals pertaining to coastal and marine management through technical, legal, training and resource survey assistance;
- strengthen the capacities of non-government organisations to undertake activities associated with coastal and marine areas.

107. The development of regional approaches to the sustainable development management, conservation and enhancement of coastal and marine resources will include:

- development and implementation at the regional level of planning methodology and delivery processes for Integrated Coastal Zone Management (ICZM) appropriate to SIDS, particularly very small, low elevation and coral islands;
- regionally coordinated programmes for coral reef and mangrove management;
- encouragement for, and facilitation of, the development of marine protected areas;
- recognition of the linkages between conservation of biodiversity and sustainable development, conservation and enhancement of coastal and marine resources;
- assistance for national reef, estuary and lagoon resources surveys;
- strengthening, regional clearing-houses for coastal and marine environmental information;

108. Technical cooperation for endogenous capacity building will include:

- coastal and marine management related training and workshops;
- enhancement of the capacity to assist island countries in negotiating with Distant Water Fishing Nations on fisheries agreements;
- strengthening of the capacity to participate in effective surveillance in the EEZs of fishing activity.

International Action

109. Action by the international community is needed to support national initiatives and to complement regional action. Major areas for action include:

- provision of financial resources required to augment national resources in the implementation of ICZM plans;
- inventory and assessment of coastal and marine resources;
- cooperation in facilitating mutually advantageous fishing arrangements between island countries and foreign fishing groups;
- development and implementation of import restrictions on products from endangered species of SIDS in accordance with CITES.

110. Access to environmentally sound and energy efficient technology, including delivery mechanisms, will include:

- development and strengthening of GIS techniques and facilities for the assessment of coastal and marine resources, including UNEP's regional GRID node.

111. Access to resources for endogenous capacity building will:

- assist with the establishment of new institutional and administrative arrangements, where necessary, for the development of integrated coastal zone management plans and their implementation;
- support regional and national training and awareness programmes in coastal resources management at both government and local community levels;
- support harmonization of approaches and sharing of information between marine and coastal area management in the Pacific, Indian Ocean and other regions.
- facilitate participation by SIDS in relevant international meetings;
- take account of the special concerns and characteristics of SIDS within the UN Intergovernmental Conference on Straddling Fish Stocks and Highly Migratory Fish Stocks.

Item 5.5 : Freshwater Resources

Basis of Action

112. Freshwater resources are vital for meeting basic needs and inadequate protection of the quality and supply of freshwater resources can set important limits to the development process. Among the small island developing states (SIDS) of the Indian and Pacific Oceans considerable scope exists for monitoring and improving freshwater supply and facilities in terms of both access and quality. This is particularly important for low lying coral-based islands where groundwater supplies are limited. In these areas, desalination of seawater may have to be considered for providing regular supplementation to the usual water supply. Even where rainfall is abundant,

access to clean water has been restricted by lack of adequate storage facilities and effective delivery systems.

113. A common threat to the freshwater resources of the SIDS is the contamination of supply by human and livestock waste, industry-related pollution and, in some cases, pesticides and other agricultural chemicals. With climatic change comes an increased risk of salt water intrusion into the groundwater table. Such incursion is made even more likely through low groundwater recharge in times of extended drought. Inadequate action to safeguard watershed areas poses a further long term threat, while in urban areas rapid population growth, changes in economic strategies and a growing per capita use of freshwater are significant challenges. Certain industries, including tourism and canning operations are profligate users of water.

114. The importance of freshwater resources and the need for appropriate development and management strategies have been emphasized at recent international fora. The Pacific region's submission to UNCED, *The Pacific Way*, and national UNCED reports of Indian Ocean SIDS highlighted the need for sustainable management of freshwater resources by Pacific island countries. Agenda 21 (Chapter 18) emphasized the importance of integrated planning and management of all types of water resources. This should enhance multiple uses including water supply and sanitation, power generation, agriculture, industry and recreation. Agenda 21 also called on all states to establish by the year 2000, water management programmes which would provide targets, necessary institutions and legal support as well as programmes on sewerage and industrial waste, water quality, cost recovery possibilities and catchment facilities.

115. At the national level, a number of countries have identified specific integrated watershed management projects that have attracted favourable donor support, including that of the ADB. Many countries seek donor support to improve access to piped and stored water in remote communities, and to improve sewerage disposal systems.

National Action

116. The essential strategies for an integrated approach towards the protection of the supply and quality of freshwater resources have, in most cases, been formulated for example via the NEMS/NEAP initiative. Essential follow-up action includes those designed to:

- establish the necessary institutional, administrative and legal structures for the implementation of an integrated freshwater development plan;
- foster the adoption of appropriate technology, including opportunities for technology interchange with the Indian - Pacific countries;
- adopt low-cost method for artificial rainwater collection;
- develop a capacity to repair existing household and community water storages and related structures;
- adopt appropriate low-cost methods for monitoring and improving water quality;
- foster community involvement in the management and conservation of water resources;
- adopt appropriate anti-contamination measures to protect water quality and supply;

- promote effective water conservation programmes, including appropriate economic measures;

- encourage the transfer of appropriate technology on cost-effective sewage treatment to provide freshwater of sufficiently high quality for its safe re-use;

- protect watershed areas for the supply of water, rehabilitating degraded watersheds;

- establish training and awareness campaigns to build up endogenous capacity relating to water conservation and appropriate rainwater catchment systems.

Regional Action

117. The development of regional approaches to the protection of the supply and quality of freshwater resources should include:

- development of an effective capacity to assist island countries in the implementation of national integrated freshwater development programmes;

- provision of technical assistance in the development and identification of appropriate technology;

- assistance with training and public awareness efforts;

- assistance with monitoring water quality.

International Action

118. The international community can provide vital support to SIDS' sustainable freshwater programmes through:

- the provision of financial assistance for:

  - the development and expansion of rainwater catchment systems,

  - the protection and rehabilitation of watershed areas.

- assistance to open up access to sound and appropriate technologies for the production, conservation and delivery of freshwater, and foster the exchange of information on water treatment methods;

- assistance with efforts particularly via training and awareness campaigns to build up an endogenous capacity relating to water conservation and appropriate rainwater catchment systems;

- assistance with the development and application of cost-effective treatment techniques.

119. The international community, in the ongoing negotiations concerning an international Convention on Desertification and Drought, should:

- take account of the particular problems of some SIDS in relation to frequent and protracted drought.

Item 5.6 : Land Resources

Basis for Action

120. The small size of most islands of the Indian and Pacific Oceans coupled with land tenure systems, soil types, relief and climatic variation, limit the area available for urban settlement, agriculture, mining, commercial forestry, tourism, and other infrastructure development, and creates intense competition between land use options.

121. Most aspects of environmental management in SIDS are directly dependent on, or influenced by, the planning and utilisation of land resources.

122. Agenda 21 deals with the conservation and management of land resources primarily under three chapters of relevance to SIDS (Chapter 10 Managing Land Sustainably, Chapter 11 Combating Deforestation, and Chapter 14 Sustainable Agriculture and Rural Development) with some aspects of Chapter 12 on Combating Desertification and Drought of relevance to some SIDS. Land resource aspects of coastal and marine, freshwater, biomass energy and biological diversity resources are dealt with in separate items (5.4, 5.5, 5.7 and 5.9 respectively).

123. For human requirements to be met in a sustainable manner, conflicts on the use of land resources must be resolved, and more effective and efficient ways of using these natural resources developed and adopted. As populations grow, the need for conflict resolution becomes ever more pressing, particularly where large tracts of land are utilised for commercial exploitation or where land is limited, resulting in unsustainable use of resources, with resultant severe land degradation.

124. The objective for sustainable land management according to Chapter 10 of Agenda 21 is to see that land is used in ways that provide the greatest sustainable benefits, not only social and economic benefits but also those linked with environmental protection and enhancement.

125. The major long term land management issue in the region is degradation, due to a variety of factors, but notably: overuse because of high population pressure on a limited resource base; deforestation due to unsustainable commercial logging or permanent conversion to agricultural or grazing pursuits and other episodic events such as fire. Natural events such as catastrophic cyclones are also major contributors. Land degradation is frequently evidenced by accelerated erosion and resultant decline in fertility and productivity, deterioration in water quality and siltation of rivers, lagoons, and reefs. Deforestation is also linked to a decline in the continuity and quality of village water supply, and depletion of genetic, wood and non-wood plant resources, and the fading away of traditional forest, lagoon and reef-based subsistence life systems.

126. With population growing at a rate from 2% to 4%, access to arable land is becoming more difficult.

127. The search for an improved quality of life with its increased demands for cash income has led to greater production of export cash crops, increasing areas of cultivation, and more mechanised production systems. This has contributed to an increasing rate of agro-deforestation and loss of multiple purpose trees from the rural landscape.

128. There is, however, much that can be learnt from traditional systems of food production and use of plants.

129. Many land resource management problems have resulted from non-sustainable forms of commercial logging. Despite these problems, an even greater rate of logging in the larger islands of the Pacific is expected as: timber supplies from the traditional SE Asian countries decline; the increased need to generate more funds for national development programmes; the prices for tropical hardwoods remain low relative to the cost of their replacement, and to alternative sources in other regions.

130. There is an urgent need to develop sound but realistic methods of identifying and quantifying the longer term impacts, in particular the costs, of unsustainable or unrenewable use of land based resources eg. forests, minerals.

National Action

131. National action for the sustainable development of land resources should be based on the strategies and programme priorities contained in NEMS/NEAP, where available, and consistent with the recommendations of Agenda 21. For SIDS, the sustainable development of land resources is intimately linked to coastal zone management and protection. In respect of forestry, account should be taken of the Non-Legally Binding Authoritative Statement of Principles for a Global Consensus on the Management, Conservation and Sustainable Development of All Types of Forests which was endorsed at UNCED. Actions of high priority include:

Integrated land use planning

- review agricultural, forestry, mining and other land use policies, for integration into balanced, sound and sustainable, long term national land use policies, and ensure their effective implementation;

- formulate and apply laws, regulations, and economic incentives to encourage the sustainable and integrated use, management and conservation of land and its natural resources;

- increase attention to national physical planning in both urban and rural environments, with a focus on training to strengthen physical planning offices;

- foster the incorporation of those elements of traditional land-use practices, known to support sustainable use of terrestrial resources in the long term, into contemporary land use and management practices.

Agriculture

- Review current agricultural practices within the framework of sustainable development policies and introduce measures that promote social and environmental sustainability - for example:

  - permaculture and agro-forestry techniques, particularly the use of multiple purpose trees to improve food production systems;

  - cultivation of plants for traditional uses;

- use of selected cultivars for improving crop yields, disease resistance, drought/salt tolerance, and nutrition content;

- integrated pest management systems and organic fertiliser systems.

Forestry

For the larger islands:

- review current forest resource allocation policies and timber production, processing and export policies and practices, vis-a-vis their impacts on the sustainability, not only of the remaining forest resource but also of agricultural and other life-support systems;

- ensure implementation of adequate and appropriate reforestation programmes on areas after logging, including custom-owned land. Particular emphasis should be given to natural regeneration;

- promote pricing mechnisms which internalise environmental costs and ensure equitable returns to landowners;

- ensure greater effective participation of landowners in reforestation, logging, processing and marketing sectors;

- identify, quantify and enhance the value of non-wood forest products;

- promote and enhance better understanding of and appreciation for the total contribution of forests to the longer term well-being of the SIDS and their peoples.

For the smaller islands:

- quantify the cumulative and current rate of loss of vegetative cover, and its impacts on food production, watershed and other life-support systems, and on traditional practices;

- formulate and implement appropriate tree planting programmes to reduce coastal and soil erosion, provide shelter, fuelwood, fruits and nuts, medicine and construction, handicraft and other materials;

- more effective ulitisation of available tree resources, particularly coconut wood;

- enhance a better understanding of and appreciation for the contribution of trees to the general, longer-term well-being of local communities.

Mining

- Where potential for commercial mining operations exist:

- ensure that the longer term interests of the country and its peoples, in particular the land owners, are protected, and not sacrificed for short term financial and economic benefits;

- ensure that monitoring of the impacts of mining is properly conducted and reported on a regular basis by the Government and company concerned.

Regional Action

132. These should focus primarily on:

- provision of technical and other support to facilitate the implementation of national actions;
- provision of appropriate training and other capacity building opportunities for SIDS personnel;
- development and maintenance of systems for continuous surveillance of the rate and extent of land use changes and monitoring of adverse environmental effects;
- coordination of activities that can be optimised through regional or sub-regional effort eg. research, market intelligence information, and assessment of potential interested overseas investors;
- collection, synthesis and sharing of relevant information, knowledge and experience among SIDS in a structured and systematic way;
- encouraging use of appropriate clearing-houses or focal points for issues pertaining to environmental, agricultural, forestry, mining and other land-based sectors.

International Action

133. International action for the sustainable development of land resources should include:

- facilitating collaboration with and support from the relevant international bodies;
- facilitating more effective inter-regional co-operation, co-ordination and collaboration in the respective fields of agriculture, forestry and other land uses, eg. through establishment of inter-regional networks and training programmes;
- improved access to resources to facilitate the effective implementation of the various national, regional and international actions.

Item 5.7 : Management of Energy Resources

Basis of Action

134. Considerable effort has already been undertaken internationally to minimise the environmental impact of energy resources extraction, transport, conversion and use, and the various relevant international agreements, including Chapter 9 of Agenda 21. The small island developing states (SIDS) in this region acknowledge their own responsibilities in this worldwide effort, and accept the action priorities impinging on energy resource use itemised in Chapters 9, 10 and 11 of Agenda 21.

135. SIDS of both Indian and Pacific Oceans are currently heavily dependent on imported petroleum products largely for transport and electricity generation and indigenous biomass fuels for cooking and crop drying. The use of both resources contribute to greenhouse gas (GHG) emissions, although SIDS emit only a fraction of 0.1% of the total global emission. The use of

biomass for energy is a significant contributor to deforestation in some SIDS. The potential effects of increased GHG's are envisaged to be disproportionately large on SIDS because of their high degree of vulnerability to climate change and resulting increases in pest infestation, vegetation changes, altered water regimes, changes in coral reef growth and sea level rise.

136. The SIDS will continue to be heavily dependent on petroleum fuels and biomass both in the short and medium term future. However, the current uses of these fuels are highly inefficient. Increased efficiency through appropriate technology and national energy policies and management measures will reap both financial and environmental benefits for SIDS.

137. Renewable energy resources endowment of SIDS vary greatly. All have substantial solar resources. Wind potential is highly variable with location, both within and between countries. Hydro power is a possibility only for the larger, higher islands. Biomass endowment is common but unequal. Studies of the potential for geothermal, OTEC and wave energy are continuing.

138. Several constraints to large scale commercial use of renewable energy resources remain. These include technology development, investment costs, available indigenous skills, and management capabilities. Small scale application for rural electrification has been sporadic. The use of renewable energy resources as large scale commercial fuels by SIDS is dependent on the development and commercial mass production of appropriate technologies by countries outside the region.

National Action

139. While assistance and support has been - and can continue to be - provided at the regional and international level, increased energy efficiency can only be achieved through appropriate policies and implementation actions at national level. The SIDS recognise the need to continue with and/or adopt where necessary, the following high priority actions at the national level:

- formulate and adopt comprehensive energy policies that recognise the ubiquitous role of energy in all sectors; formulate specific energy sector plans; and strengthen institutions for effective implementation and management of energy programmes;

- promote more efficient use of energy resources in their development planning and use appropriate methods to minimise adverse effects of climate change on their sustainable development;

- review existing taxation, subsidies and duty arrangements associated with all energy services, equipment and products, and adopt fiscal policies that eliminate price distortions and encourage energy efficiency and conservation;

- adopt energy efficiency standards and guidelines for transport equipment, electrical appliances and commercial buildings;

- adopt environmental guidelines and standards for petroleum storage and distribution facilities, electrical power generation and distribution operations, waste oil disposal and marine oil discharges and spills;

- transform electric power utilities (wherever feasible) into fully commercial operations that achieve full cost recovery and legislate to encourage efficient management, based on least-cost planning including demand-side management use of renewable energy sources, and

introducing appropriate electricity buy-back arrangements wherever technically and commercially viable;

- implement appropriate public education/awareness programs including consumer incentives to promote energy conservation;
- carry out comprehensive renewable energy resource assessment programmes to ascertain the longer term potential of these resources;
- encourage fuel wood cultivation where necessary and devote more resources to development, distribution and monitoring of efficient wood burning devices.

Regional Action

140. Actions at regional level need to address coordination, cooperation and pooling of resources. These include:

- formulating standards and guidelines for the energy sector that would be generally applicable to the small islands (for example, petroleum safety and environmental standards, waste oil disposal guidelines, energy efficiency standards);
- providing advice and technical assistance to countries at least in the short term, to formulate appropriate energy policies and to develop the independent capacity to effectively plan, manage and monitor their energy sectors;
- performing information dissemination functions, particularly in relation to energy related technologies, where there are clear regional advantages in doing so;
- promoting regional cooperation and technical exchanges between small island countries to assist in overcoming energy sector issues and problems that are common to the region.

International Action

141. Implementing appropriate actions at an international level to assist countries to develop ecologically and economically sustainable energy sectors is essential. It will require a significant commitment on the part of the global community to address common issues and problems. Important actions should include:

- formulating and ratifying international agreements on energy sector issues in relation to sustainable development and the environment, such as international standards for the production and distribution of energy (for example double hulled oil tankers);
- developing and agreeing to effective mechanisms for the transfer of energy technologies and the dissemination of information on these technologies, energy conservation and efficiency practices and guidelines, and environmental standards and monitoring procedures;
- ensuring international institutions and agencies incorporate environmental efficiency and conservation principles into energy sector related training and technical assistance, and linking concessionary financing facilities to appropriate energy sector reforms (particularly in relation to the power sector); and

- increasing the level of global commitment and support to the development and commercialisation of renewable energy technologies and improving the efficiency of existing technologies and end-use equipment based on conventional energy sources.

Item 5.8 : Management of Tourism Development

Basis for Action

142. It is widely recognised that tourism, and in particular ecotourism, contributes to enhancing public appreciation of the environment and to increasing public awareness of the need to conserve environmental integrity for sustainable development. The SIDS of the Indian - Pacific Oceans note that tourism is one of only very few options available to many of them for achieving longterm sustainable development.

143. The tourist market is often fickle. The SIDS are dependent on regular and reliable air/ocean links through international carriers, to bring in tourists. The heavy reliance on tourist development renders them vulnerable to influences beyond their control. Some SIDS have established their own national airlines in order to decrease their vulnerability.

144. Most of the SIDS ,have very fragile environments with a limited resource base for development. The protection of these fragile environments will enhance their value for tourism - particularly for ecotourism.

145. The special tourist attraction of the SIDS is the distinctiveness of their cultures. The diversity and fragility of their environments are reflected in the diversity and fragility of their cultures. The protection of the former is an important condition for the protection of the latter.

146. The SIDS of the Indian-Pacific Oceans vary widely both in the endowment of tourist attractions and in the status of development of the industry within each country. Most of the countries have only recently taken measures to accelerate the development of this sector. Because tourists are generally drawn from a narrow market source, it is necessary to ensure that competition between the countries is not detrimental to the smaller, more vulnerable nations that have even less choices for development.

147. As an example, continued tourism growth in a larger island country may divert potential tourists away from the smaller island nations reducing numbers to a critically-low level for sustainability for their tourist industries. The SIDS of the Pacific have established a Tourism Council for the South Pacific (TCSP) in order to promote greater cooperation and coordination of activities for tourism development. Similarly, the Indian Ocean Commission has created a Permanent Committee for Tourism.

148. Tourism triggers multiplier effects which can have important impacts on the very small economies of SIDS. These include the increased production of local foods, the revival and increased production of quality handicrafts, as well as the revival and increased appreciation of national cultures and cultural entertainment. Employment opportunities are created both directly and indirectly by tourism development.

149. The SIDS recognise the potential detrimental social and environmental impact of tourism, and the need to learn from the experience of other countries and regions.

150. Capital investment for tourism development - particularly for the necessary infrastructure - is costly. Therefore it is imperative that the development of the tourist industry be carefully planned to deliberately target specific markets with the aim of maximising returns while conserving the environment.

151. Tourism development will increase rapid air links between SIDS and the rest of the world. This poses potential quarantine disasters through introduction of destructive pests via the growing tourist industry.

152. Tourism development and coastal zone mangement are closely inter-related in these small islands.

National Action

153. At the national level SIDS will need to:

- adopt the umbrella concept that tourism development and environmental conservation are mutually supportive;
- adopt integrated planning within which tourism is developed within a social, economic and environmental framework for sustainable development;
- develop tourism master plans that contain long term perspectives and show tourism and infrastructural carrying capacity estimations, and resource requirements that do not conflict with overall land and water resource use;
- introduce regulatory measures that encourage re-investment of tourism profits within the country and maximise the flow of tourism benefits to nationals;
- adopt measures that protect the cultural integrity of these small islands;
- involve local populations as their heritage and culture are emphasised and involve them in identifying, conserving and organising, as well as managing, environmental heritage / cultural items;
- review existing and potential tourist attractions within each country and develop facilities to meet specific "niche" markets, particularly in ecotourism and/or cultural tourism;
- adopt environmental management measures that minimise damage to the environment through tourism development. These should include:
  - environmental impact assessment of all tourism projects;
  - monitoring of environmental impact of tourism activities;
  - development of guildelines and standards for design of tourist facilities particularly with respect to energy consumption of buildings and treatment and disposal of wastes;
  - promotion of the active participation of the local population in the management and policing of natural areas set aside for ecotourism;

- ensuring that tourist development does not crowd local populations out of their land and that ample space remains available for their use to prevent tourist fatigue;

- provision and/or promotion of appropriate training for personnel involved in the industry;

- measures to ensure equal opportunities for the enjoyment of natural areas, such as beaches, and diving sites, for both tourists and nationals;

- guidance and support for the development of local resource-based activities that service the tourist sector - such as production of handicrafts, game fishing, and diving.

Regional Action

154. The movement of tourists is expected to increase markedly in the future. Similarly in the Indian Ocean Region through the Permanent Committee for Tourism and its policies. Tourists are likely to increase too. It is essential that SIDS cooperate in order to garner some of this expanded market. At the regional level it will be necessary to:

- examine possible complementarities between island states;

- investigate the feasibility of attractive packaged options covering several island groups;

- formulate group marketing strategies; and

- continue to provide training and technical assistance services as are currently provided through regional organisations and institutions.

International

155. As SIDS in this region will have to develop niche marketing especially for ecotourism and cultural tourism, international support in facilitating linkages and infrastructural development will be beneficial.

Item 5.9 : Conservation of Biological Diversity

Basis for Action

156. The island countries of this region are renowned for their species diversity and endemism. However, due to the small size, isolation and fragility of island ecosystems, biological diversity in this region is among the most threatened in the world.

157. The basis for action relevant to almost all island countries in Asia-Pacific was clearly stated in *The Pacific Way - As one of the world's centres of biological diversity, maintaining the region's biological diversity in both marine and terrestrial environments is critical to sustainable development. Species and ecosystems in the region are highly vulnerable to habitat destruction and pest infestation. Although limited, enough information already exists to facilitate the selection of priority sites to be protected, emphasis must now shift to practical arrangements for implementation of conservation programmes in the customary land context. Given the special characteristics of land tenure and resource ownership in PIDCs, which in many cases extends to*

coastal and inshore areas, ... the successful protection and management of natural areas depends on the full participation and active support of the local communities. Highest priority for the establishment of protected areas should logically be given to those sites harbouring the greatest diversity and endemism, and which face the greatest threat.

158. Chapter 15 of Agenda 21 that deals specifically with the conservation of biological resources although almost all chapters concerned with the conservation and management of resources touch upon the issue. The aim of the programme to conserve biological diversity includes encouraging the early ratification of the Convention on Biological Diversity, the development of national strategies for the conservation of biological diversity and the sustainable use of biological resources, and the integration of these strategies into national plans. Key elements of the programme include sharing the benefits of research and development, and conducting country studies and national assessments that will feed into a global report on biological diversity. Of particular interest may also be the recognition and fostering of traditional knowledge and practices.

159. In the past, there has been a strong emphasis on the collection of more information. In island countries where limited and biologically precious resources are being threatened, while lack of sufficient information is often cited as a rationale for inaction, there is often enough information to identify areas requiring *in situ* conservation. Although more information will be important to develop appropriate management plans, information collection should no longer be a prior condition for *in situ* conservation projects.

160. The nature of traditional, often communal land and marine resource ownership in many island countries requires community support for the conservation effort. Governments often have little or no control over the biological resources being protected, and the full support of resource-owning communities is therefore necessary. The need for communities to be compensated for lost income-earning or livelihood potential is also a constraint. Without this local support and commitment and the opportunity to integrate sustainable income generation into the conservation effort, even the most highly studied and well planned conservation area will not be sustainable. In this respect NGOs can often play an important role.

161. Some of the most precious biological resources for islanders, environmentally, economically and culturally, are marine and coastal rather than terrestrial. This requires a different conservation focus from that usual in the larger, developed countries. Other differences include the lack of basic institutional support for the conservation effort (staff, vehicles, etc) and access to **small** amounts of money to help start innovative projects.

162. Translocation and introduction of marine animals in the South Pacific has proceeded largely without undertaking the necessary environmental and population considerations. Due to differences in genetic make-up of stocks of the same species in different locations, the mixing of translocated, introduced animal's genes into the local populations poses a potential threat to the stocks of native species one is trying to conserve or develop. In addition, the risk of importing "near" diseases and the potential negative effects of introduced species on native animals could be high.

163. In recent years the island countries of the Pacific have developed an *Action Strategy for Nature Conservation in the South Pacific* and an umbrella biological diversity programme for carrying it out. The South Pacific Biodiversity Conservation Programme (SPBCP), funded under the GEF and co-financed by Australia, will provide considerable assistance with in situ and species

conservation in line with the issues discussed above. The focus of the SPBCP is to establish and initially manage a series of large, diverse Conservation Areas, in which human activities will not be excluded, but will be guided to protect important ecological features and to enable sustainable use of the area's natural resources. Priority will be given to known sites of significance which have community support for their protection.

164. The Apia and SPREP Conventions, and continuing regional programmes for the conservation of marine turtles, avifauna and marine mammals, are further evidence of the commitment of island countries to the conservation of biodiversity. Other conventions exist including CITES (Convention on International Trade in Endangered Species) and RAMSAR (Convention of Wetlands of International Importance Especially as Waterfowl Habitat) are also important in the region. CITES, in particular, is of significance for the populations of marine turtles in the Indian - Pacific Oceans.

165. At a national level, National Environmental Management Strategies (NEMS) or National Environmental Action Plans (NEAPS) have consistently stressed the importance of information collection, creation and management of protected areas (both terrestrial and marine), species conservation plans and studies, and institutional building (both legislative and human development-oriented).

National Action

166. National action for the conservation of biodiversity and sustainable use of biological resources should be based on national priorities, as contained in NEMS/NEAPS where available, consistent with the approach to be adopted by the SPBCP. For island developing states the Indian and Pacific Oceans this action includes:

- identification and assessment of countries' biological resources;
- identification of sites of high biological significance for conservation of biological diversity, and, where there is community support, focus on these, as potential protected areas;
- identification of sites of high biological significance which are also of value for ecotourism or other sustainable development opportunities;
- implementation of measures to secure the protection and conservation of site of high biological significance;
- recognition that the maintenance of biological and genetic diversity is important not only in undisturbed terrestrial and marine ecosystems but areas already being utilised for agriculture, forestry and urban settlement;
- ratification and implementation of the Convention on Biological Diversity, CITES and other relevant international conventions;
- ensuring there is an appropriate domestic legal framework for biodiversity conservation.
- promotion of programmes for community support for the conservation of biological and designation of protected areas;

- development of educational media activities to support biodiversity;
- development and implementation of national procedures and legislation relating to the translocation and introduction of plants and animals, in particular, marine species;

167. Development Plans, through the incorporation of NEMS/NEAP should include:

- protection of marine and terrestrial areas of high value as sites of biological diversity;
- promotion of ecotourism or other sustainable development opportunities.

168. Measures for enhancing endogenous capacity will include:

- concentration on educational strategies that increase awareness of the significance of biodiversity conservation and particularly the fundamental importance of a diverse biological resource base to resource owning communities;
- ensuring an appropriate legislative framework for biodiversity conservation is in place;
- providing incentives for trained islanders to remain in technical government positions;
- supporting the use of traditional knowledge and techniques;
- encouraging the involvement of NGOs in biodiversity conservation.

Regional Action

169. The development of regional approaches to the conservation of biological diversity will:

- encourage countries to concentrate on known, existing sites of biological significance, and to build up community support for the protection of these areas;
- develop models for integrating sustainable development with the conservation of biological diversity;
- carry out regional protection programmes for migratory species or species with habitats crossing national boundaries;
- develop appropriate procedures to be fulfilled by both the exporting and importing countries prior to a species translocation.

170. Technical cooperation for capacity building will:

- promote at all levels the identification and use of traditional knowledge and techniques for resource management which assist the conservation of biological resources and diversity;
- strengthen national capabilities to ensure conservation of biological diversity;
- assist in conducting national and regional surveys of biological diversity and in establishing resource data bases;

- develop specific regional strategies, as well as national management plans for endangered, threatened or vulnerable habitats, ecosystems and species;

- develop a strong regional capability for the co-ordination of information exchange, training and technical assistance in support of national efforts to establish and manage conservation areas and for species conservation;

- encourage the involvement of NGOs in biodiversity conservation.

International Action

171. International action for the conservation of biological diversity will need to include:

- provision of improved access to financial and technical resources for the conservation of biological diversity, taking into account the importance of both conservation and sustainable use of biological diversity, in SIDS.

172. Access to environmentally sound and energy efficient technology, including delivery mechanisms, will:

- implement the biotechnology aspects of Agenda 21 and the Biodiversity Convention supportive of sustainable island development.

173. Resources for endogenous capacity building will be used to:

- provide funds for basic institutional and logistic support for the conservation and management of biological diversity;

- encourage the involvement of NGOs and the private sector in biodiversity conservation.

Item 5.10 : National Institutions and Administrative Capacity

Basis for Action

174. The integration of environmental considerations into the national decision-making processes is considered to be the single most important step to be taken by SIDS to ensure that the principle of sustainability guides all future development.

175. Economic imperatives must be sifted through a fine socio-environmental screen if the natural resource base is to be preserved for the benefit of future generations and social and cultural values safeguarded.

176. Few environmentalists have any depth of economic training. Equally few economists have training in an area of environmental science or law; and some have no interest in matters environmental whatsoever.

177. Yet a governing condition for the rational pursuit of sustainable development objectives is the integration within both government and private sectors of environmental considerations in the economic decision-making process. And such integration must not be a forced marriage required by Environmental Impact Assessment (EIA); it must become a way of life, an automatic reflex.

178. This mental merging of environmental and economic considerations would ideally start in early youth and be carried forward and reinforced along life's path.

179. Most governments of the region, and certainly those which have endorsed national environmental management strategies (NEMS/NEAP) or their equivalent, at the highest level subscribe to the nation-wide need to consider potential socio-environmental consequences of policies, and development initiatives. Most governments have also recognised the role, at the community level, of national regional and international NGOs in sustainable development, especially in social and environmental sectors.

180. Formal integration of economic and environmental considerations will necessitate a series of institutional adjustments within government administrations, accompanied by across-the-board strengthening of environmental administrative capacity.

181. Many forms of institutional adjustment are conceivable and each NEMS/NEAP has its own preferred course of action tailored to specific country needs. However, the following common elements have emerged:

- institutionalising the environment and sustainable development task forces established in each country to guide the UNCED process and NEMS/NEAP preparation. In most Pacific Island countries these task forces have been referred to as NEMS/NEAP Task Forces;

- merging of these task forces with existing development committees or the like to establish a single integrated Sustainable Development Board or Commission at the highest level of government;

- upgrading of environment offices and their provision of secretariat services to the institutionalised task force and other bodies within the decision making machinery of government;

- government recognition that sound environmental management is properly the responsibility of all, and does not rest solely with the national agency or department mandated by government to administer the environment sector;

- the strengthening of planning offices, statistical units and national database units, and improved co-ordination with economic and environmental management units;

- designation in each sector ministry of offices responsible for environment and sustainable development issues.

182. It is recognised that the preparation of strategies such as the NEMS/NEAP, has been a first step in a process leading to the wide application of sustainable development principles. Each country now produces an indicative planning instrument in the form of a national development plan (NDP), usually on a five-year cycle. But such NDPs are increasingly regarded as unwieldy and an inappropriate use of scarce talent and time unless they are in reality used as key documents in national planning and budgetary processes. Some NDPs are primarily donor-oriented. To address this unsatisfactory situation most SIDS are now in the process of adopting strategic planning. This approach focuses upon clear statements of objectives, strategies, policies and carefully appraised public sector investment programmes (PSIP's). It also concentrates upon

macro-economic policies and environmental constraints, and broad national and sectoral strategies. Preparation, appraisal and monitoring capacities should be strengthened in sector ministries which play a critical role in formulating and implementing sectoral policies and strategies.

183. NEMS/NEAP should integrate into the national planning framework, whether NDP, national strategic plan, public sector investment programme, or a combination of these in an evolutionary process culminating in sustainable development strategies (SDS). These would be developed by an integration of the NEMS/NEAP and the National Development Plan or equivalent through the public consultation process and mechanism already developed by NEMS/NEAP. Such SDS would ensure that planning, financial, political and environmental policies are integrated into a true national development policy based on sustainable development.

184. The implementation of SDS would appropriately be at the highest levels of government, through institutionalising the NEMS/NEAP, or equivalent, Task Force as an advisory body to the responsible Minister, the Head of Government and Cabinet. Such a body should have high level representation from public and private sectors and NGOs. However, institutionalising the Task Forces should be predicated on strong Cabinet support; a clear role for them; sufficiently strong powers; membership broad enough to bring in important sectors and the public but small enough to be effective; and adequate funds. The areas of competence of the body might include:

- developing national sustainable development policy for consideration by government;
- implementing the national government's sustainable development policies;
- developing comprehensive, national sustainable development law;
- promote uniformity between national and state/provincial/island environmental laws, regulations, and penalties;
- setting minimum national pollution/environmental standards for water and air quality, noise control, and waste management;
- setting guidelines for when EIA is needed and how it should be done;
- vetting projects funded by external donor agencies for which EIA is requested;
- evaluating the environmental costs and benefits of development proposals by both the private and public sectors, where necessary instituting in-depth EIA;
- monitoring the environmental performance of states/provinces/island councils with respect to the implementation of EIA guidelines and environmental quality standards;
- undertaking broadscale land and marine resource planning to avoid the cumulative impacts of small, individual projects;
- setting guidelines for the management of endangered species, cultural and historic sites;
- instituting nationwide environmental training and education programmes;
- promoting protection of natural, historical, and cultural heritage.

185. Socio-environmental impact assessment would be a pre-eminent environmental management tool to be applied by environment units. EIA assists the early identification of potential problems, and hence aids planning to prevent or reduce adverse impacts to acceptable levels before investment is committed.

186. However, before an efficient process of EIA is fully operational:

- guidelines are needed for when EIA is needed;
- streamlined administrative procedures have to be developed for the conduct of EIA and appraisal of environmental impact statements;
- due weight should be given in the EIA process to public consultation and traditional rights;
- minimum environmental standards should be set for water and air quality, noise control, and waste management; and
- guidelines should be set for the management of endangered species, and of cultural and historic sites.

National Action

187. National action and policies for strengthening the national capacity for environmental management and administration of governments at national, provincial, state and island levels should include:

- use of NEMS/NEAP as the key documents for the planning and implementation of environmental programmes;
- development of clear NEMS/NEAP implementation strategies and schedules developed at both regional and national levels;
- establishment or strengthening of environmental agencies in each SIDS with adequate financial and staff resources;
- preparation of annual financial estimates with close reference to the nationally approved environmental policies and strategies of the NEMS/NEAP;
- implementation of projects and recommendations identified in NEMS/NEAP, particularly in relation to institutional strengthening;
- merging NEMS/NEAP into the National Strategic Development Plan;
- increased involvement of NGOS and local communities in national planning and implementation of sustainable development programmes.

188. Emphasis should be given by SIDS to:

- institutionalising the existing Task Forces within the government decision-making machinery and vesting them with a central advisory role, and giving them appropriate support to enable follow-up of the outcomes of the GCSDSIDS;

- recognising that environmental management is a responsibility of all sector ministries, reviewing government mandates to ensure that sectoral projects are consistent with the objectives of NEMS/NEAP;

- reviews of NEMS/NEAP both annually by government in the context of the budget estimate process, and periodically in the context of the National Strategic Development Plan;

- integrating conventional economic plans, strategic plans, and NEMS/NEAP into a single "Sustainable Development Strategy" document;

- the adoption by governments of socio-environmental impact assessment as a routine tool to be applied to all policies and development proposals with likely significant environmental impacts;

- improved, national and regional monitoring of environmental expenditure by environmental offices, sectoral departments and agencies, and non-government organisations in order to obtain:

  - a more complete evaluation of total real expenditure on environment by SIDS;

  - greater appreciation of environmental inputs to the process of government by indirect as well as direct means;

- adaptation of the National Accounting System which takes into account damages to and depletion of the natural resources of the country;

- increasing public awareness and community participation in the process of integrating environment and development.

Regional Action

189. Appropriate regional measures for institutional strengthening and building administrative capacity include:

- recognition by all regional organisations that officially endorsed NEMS/NEAP or their equivalent are the key documents for the planning and implementation of environmental programmes;

- use of the NEMS as key documents for the development of the SPREP Work Programme;

- supporting and strengthening regional institutions and organisations to provide appropriate training to facilitate the main streaming of environment in development planning and decision-making.

International Action

190. Action should include:

- financial and technical assistance to strengthen the national institutions and administrative and operation capacity.

Item 5.11 : Regional Institutions and Technical Co-operation

191. The limited resources and small size of SIDS makes it especially necessary to pool these resources through regional cooperation and institutions. It is essential that effective support for regional projects be coordinated through regional bodies. This is desirable to avoid duplication and achieve complementarity of assistance.

Regional Intergovernmental Organisations of the Pacific and Indian Oceans

192. There are eight regional intergovernmental organisations in the Pacific region. They are the South Pacific Forum (SPF), the Forum Fisheries Agency (FFA), the South Pacific Commission (SPC), the South Pacific Applied Geoscience Commission (SOPAC), the South Pacific Regional Environment Programme (SPREP), the University of the South Pacific (USP), the Pacific Islands Development Programme (PIDP) and the Tourism Commission of the South Pacific (TCSP). These bodies were established under international agreements among the member countries. The draft international instrument under which SPREP will become a separate legal entity is currently under examination by the relevant governments.

193. Three regional organisations are particularly important to sustainable development in the Indian Ocean. They are the South Asian Association for Regional Cooperation (SAARC), the South Asian Cooperative Environment Programme (SACEP), and the Indian Ocean Commission (IOC).

Co-ordination among regional bodies

194. Close coordination helps ensure that planned work programmes reflect the sector priorities of the member countries. The South Pacific Organisations Co-ordinating Committee (SPOCC) provides a forum within which the heads of the regional organisations meet and discuss issues of common interest. Similar co-operation among the regional organisations of the Indian Ocean is evolving. (SPF and IOC will be coordinating programming exercises for their respective regions, with the output from these exercises being project profiles that will support national objectives and priorities).

195. Currently multilateral and bilateral donors undertake their own regional programming exercises through regular dialogue with SIDS and relevant bodies.

196. Non-government organisations deliver services at the national and regional level in support of regional programmes.

Rationale for service delivery through regional bodies

197. Most SIDS are small and isolated, and therefore constrained by limited resources. Regional oganisations, as intermediaries, can play a useful role to facilitate efficient and cost effective assistance to these states. Donors also see regional organisations as useful vehicles, in many instances, for implementation of regional programmes. Programming, administrative and implementation capacities of those bodies can further be improved with the support of member nations and donors.

Strengthening regional organisations

198. Within regional organisations the core budget meets administrative overhead costs. This is normally funded by annual contributions from member countries. However the ratio of member contributions to total core budget expenditures and to the total budgets of these oganisation have declined over the years. Consequently contributions to core budget should be subjected to regular review. Donors generally fund the administrative costs of projects. The percentage of programme aid which is charged to this administrative overhead should also be subjected to similar review. Increased financial support for these organisations' budgets must be matched by finance discipline by the organisations.

National Action:

- support for regional organisations through membership and budgetary contributions;
- encouragement of improved co-ordination among regional bodies;

Regional Action

- encouragement of improved co-ordination among regional bodies;
- formulation of regional programmes and strategies. This exercise is to be done with the joint efforts of the regional bodies in consultation with national authorities.

International Action

- financial and technical support to the regional bodies to strengthen their capacities;
- donors should work through relevant regional / subregional bodies where appropriate.

Item 5.12 : Transport and Communication

Basis for Action

199. Transport and communications are the lifelines linking island countries with the outside world with each other and within their own communities, and are integral to achieving the development aspirations of those countries. Agenda 21, Chapter 31, emphasises the need for better communication so that policy makers can get access to the best available knowledge to help them develop strategies for sustainable development. According to SPREP's report, *The Pacific Way*, among the fundamental constraints to sustainable development are:

- *the difficulties of distance, isolation, dispersion, and national budget constraints in designing and implementing environmentally sound and sustainable development programmes in the region.*

200. Distance and isolation have resulted in relatively high transport (and insurance) costs - both sea and air. Shipping and air services are largely beyond the control of island countries, while the servicing of outer islands and remote rural communities presents further constraints. High air transport costs relate, in some degree, to the operation of national airlines that tend to fragment regional markets. The constraining influence of these factors on sustainable development of island countries cannot be underestimated.

201. The environmental issues associated with transport and communications development need to be properly addressed. Such issues include land transport which has been found to be one of the greatest degraders of the urban environment, and quarantine facilities - both at the national and regional level - which appear to have lagged behind improvements and major changes in transport services. Insect invasions, potential early indications of climate change, may raise quarantine issues that need to be recognised and adequately addressed.

202. The South Pacific Forum Secretariat is the lead regional agency for coordinating and fostering transport and communications development in the Pacific region. A range of other donors - bilateral and multilateral - are providing technical and financial assistance at the national level. A major challenge is to devise innovative approaches to resolving transport problems, for example, the development of low-cost high-tech methods for the moving of cargo, and to improving community access to telephone, radio and related services. In relation to low-cost transport, the development of suitable wind-assisted ships and dirigibles for moving cargo offer interesting possibilities and worthy of further investigation.

National Action

203. Action is required to upgrade transport and communications services among island states as a vital prerequisite for sustaining development and for increasing community awareness of environmental and natural resource issues. Priority areas for attention include:

- continued efforts to strengthen transport services and facilities at both the national and domestic levels, giving particular attention to innovative low-cost approaches;
- the upgrading of domestic communications facilities, including radio and telephone coverages to remote rural communities, and to persevere with effort to improve international telecommunications links;
- attention to quarantine problems and requirements stemming from changing transport situations and longer-term climatic changes;
- adopting appropriate road transport programmes including EIA and safety assistance of new roads as a means of avoiding land degradation;
- preventative measures should be taken to reduce motor vehicle deaths in island countries.

Regional Action

204. Regional initiatives remain crucial for enhancing transport and communications facilities of island countries. Particular attention should be given to:

- providing adequate support for regional organisations as coordinating and advising agencies in this field;
- fostering increased cooperation in civil aviation, shipping and telecommunications, not excluding possibilities for consolidation of national airline services;
- developing effective quarantine services, through upgrading existing plant protection and related programs;

- strengthening distance education systems, including the development and application of new technology and ensuring effective utilisation, to promote greater public awareness of environmental issues.

International Action

205. Additional to financial and technical support, improved access to technology is necessary to:

- develop innovative solutions to move cargo to and from island ports without the need to establish high cost infrastructure;
- maintain efforts to develop energy efficient transport, appropriate for small island countries;
- cooperate with national and regional bodies in designing and enforcing effective quarantine systems;
- provide assistance for the prevention of motor vehicle related morbidity and mortality.

Item 5.13 : Management of Science and Technology

Basis for Action

Science for Sustainable Development

206. Recognising the global appreciation of the crucial role of science in guiding and monitoring sustainable development as encapsulated in Chapter 35 of Agenda 21, the SIDS of the Indian and Pacific Oceans region are acutely aware that their limited capacity to access and utilise developments in science adds another dimension to their vulnerability.

207. SIDS of the region appreciate the of uncertainty in science's understanding of human impact on the environment - particularly in relation to global warming and sea level rise. The reduction of this uncertainty facilitates more effective development planning and environmental management where choices are limited as in SIDS. This requires the availability of sufficient basic scientific information about each country's resources and environment, the establishment of a data base as a basis for resource use planning and environmental monitoring, and the collection of specific data in a consistent time series for monitoring and assessment of the performance of sustainable development.

208. SIDS in this region recognise that Agenda 21 calls for state of the environment reporting. While countries have done what they can in this area their current stock of scientific information and ability to update information and data is inadequate for the long term.

209. A substantial proportion of island peoples survive on traditional knowledge and its application. These are being threatened in societies increasingly driven to adopt technologies and western scientific understanding, of their same resources and environment. A better integration of western and traditional knowledge is therefore required.

210. While island countries lack adequate stock of basic scientific information - including the documentation of traditional scientific knowledge - scarce scientific research is sometimes further

hindered by lack of guidelines for the conduct of research. Further the scarcity of local scientists and reliance on expatriate researchers often result in the loss of research information from SIDS to the countries of the researchers.

211. Scientists can provide useful guidance on how to use the resources more efficiently for sustainable development but there is a dire lack of all classes of natural scientists in our countries. Current reward systems within island countries neither encourage the brightest students towards careers in science, nor ensure those already within science remain. The intimate relationships between technology choices, the development process, and the environment, will require that the management of sustainable development be science based. For this to occur, decision-makers in SIDS need to understand that science is a key element of risk management.

212. Current training in science within SIDS of this region is inadequate, both in numbers of scientists produced and in range of areas covered, in order for island countries to meet minimum requirements for science-based management of sustainable development.

Technology

213. Recognising the substantial efforts made globally and within this region both for development and for transfer of environmentally sound technologies, and the particular need for developing countries as stated in Chapter 34 of Agenda 21, the SIDS of this region note that their special circumstances restrict their abilities to develop endogenous technologies and therefore limit choices and add to the vulnerability of SIDS.

214. The SIDS of the Indian - Pacific Ocean are heavily dependent on imported technologies. Often the overriding criteria is affordability. Thus they risk dumping of inappropriate and/or substandard products on their islands. In some areas we have a range of technologies - many inappropriate for sustainable development - while in other areas we have very few. Much of the technology introduced either remain unassessed or have never had a fair trial through lack of trained personnel and appropriate management infrastructure to use the technologies effectively.

215. The assessment and adaptation of some rapidly evolving modern technologies, for planning sustainable development at national level, particularly in communications and Geographic Information Systems (GIS), remain a problem for SIDS. On going support in this area will be essential. The role of the GIS for sustainable development planning and management cannot be over emphasised, and it is already being utilised within the region.

National Action

216. National action and policies for capacity building involving science and technology should:

- promote basic scientific research in order to increase the current stock of scientific information;
- build into the identification of national priorities, such as the NEMS/NEAP process, a research needs analysis covering both basic and applied studies needed to achieve sustainable development;
- collect consistent time series data for monitoring performance of sustainable development;

- continue and expand programmes relating to traditional knowledge and encourage links between traditional and Western scientific understanding;
- consider a review of the current status and reward/pay of scientists in order to encourage students in science;
- actively promote awareness of the opportunities and benefits of careers in science;
- promote and support with adequate resources the expansion of training in science;
- use local community people wherever possible in national science research programmes;
- introduce measures to promote science based management decisions for development programmes in recognition of the fact that science is a key element in risk management;
- develop technology policies and plans for adoption of appropriate technologies for sustainable development, self-sufficiency and minimisation of import dependency;
- seek information on and evaluation of technology options available worldwide and particularly in some developing countries in order to adopt the appropriate mix to facilitate sustainable development;
- promote training in the use and management as well as appropriate adaptation of introduced technology, including short courses and demonstration projects;
- review current practices of technology imports including those through aid and introduce measure to encourage importation of environmentally friendly technologies;
- establish a national council to advise on science and technology issues for sustainable development.

Regional Action

217. The development of regional approaches to science and technology should include coordinated and cooperation action to:

- encourage the conduct of relevant scientific research at the regional level, and the exchange and sharing of the results of such research;
- ensure mechanisms are in place for the appropriate protection of intellectual property rights in accordance with relevant international conventions;
- seek cooperation of countries both within and outside the region to provide access to their facilities for scientists of SIDS to develop and test technologies appropriate for use in SIDS;
- develop the capacity of SPREP/SAARC in cooperation with other relevant regional organisations to evaluate and strengthen the use of rapidly evolving technologies, such as GIS, and to promote the use and adaptation of efficiency options as well as provide training and support for local users;

- coordinate efforts and co-operate in developing technologies for the commercial production of natural products common to SIDS in this region.

International Action

218. The SIDS of this region call upon the international community to:

- promote greater flow of scientific information that is useable by developing countries - particularly those that will assist better management of sustainable development;

- support scientific efforts by SIDS that contribute to greater global understanding of human impact on the environment and reduce uncertainty in predictive capacity of science worldwide - particularly in relation to global warming;

- review science policies to encourage scientific research and training that promotes increased understanding of global environment problems as they effect SIDS and facilitate better environment management internationally;

- review technology research and development in order to encourage the development, production and dissemination of technologies appropriate for sustainable development of SIDS - such as small scale renewable energy technologies, environmentally friendly intensive farming methods or herbal based medicines;

- encourage the development within UN agencies (such as UNESCO, UNEP, FAO etc.) appropriate programmes for SIDS to improve access to science and technology for sustainable development;

- encourage the international community in general to include in their science and technology activities a component that builds the science and technology capacities of SIDS.

Item 5.14 : Human Resource Department - Population, Urban Development, Education and Health

Population

219. Chapters 5 and 7 of Agenda 21 recognise the need for countries to address population programmes as part of broader development policies and, in particular, the necessity for countries to know their national population-carrying capacity.

220. The SIDS in the Asia-Pacific region are aware that some of them have population growth rates amongst the highest in the world, while scattered locations within their territories support population densities amongst the highest in the world.

221. Population migration is an important feature of the Pacific SIDS. For some, rural to urban migration has resulted in rapid urban growth rates, while for others, outward migration to large metropolitan centres in Pacific Indian rim countries, results in significant remittance of funds and substantial contribution to the countries' foreign exchange earnings.

222. Recognising that the migration of skilled islanders is a loss to national capacity, without the outlet for external migration, many of the SIDS with limited resources, could rapidly reach the

limits of their carrying capacity. Many years of family planning and population programmes have made little impact on the population growth rates of most SIDS. Cultural sensitivities remain important factors in public education programmes on population issues. It is noted that fertility rates of women tend to decrease with increase in the literacy and education levels, as well as in their participation in the economy.

National Action

223. There now needs to be a greater recognition of the urgency of the problem of rapid population growth particularly in view of its association with stress on SIDS environments. National governments need to:

- mainstream population issues into decision-making and planning mechanisms of government in the interest of sustainable development;
- develop comprehensive population policies consistent with sustainable development objectives which address, interalia, population issues of family planning, low life expectancies, high birth rates, infant mortalities and maternal deaths;
- include land tenure issues in all studies of population settlements and resource use;
- investigate expected effects of sea level rise in each SIDS and formulate plans for adaptive measures both physical and social;
- promote activities that address the status of women and youth - particularly in education and economic participation.

Regional Action

224. The uncertainties associated with anticipated effects of accelerated climate change, makes the consideration of population issues by the heavily populated, land-scarce SIDS more urgent. SIDS can cooperate at the regional level to:

- develop programmes and provide resources to implement the outcomes of the 4th International Conference on Population and Development (ICPD);
- initiate studies of alternative scenarios of the effects of climate change on the population of each SIDS with suggested adaptive measures for each scenario.

International Action

225. The GCSDSIDS calls on the 4th ICPD to pay particular attention to, and provide appropriate resources to meet the particular population concerns of SIDS.

Urban Development

226. Of increasing concern to SIDS is the rapid growth of urban settlements, with concomitant increases in problems of inadequate infrastructure, overcrowded poor housing, negligible social services, unhealthy environment, increased unemployment, overtaxed and insufficient garden lands to supplement subsistence needs, and increases in crime.

227. Notable attempts have been made by SIDS in the region to address these issues. However, urban populations have continued to grow at a faster pace than economic growth. This has resulted in the overall deterioration of urban environments and in the quality of life of a large proportion of urban dwellers.

228. The greater allocation of development programmes to urban settlements and more accessible rural locations has led to the depopulation of many rural areas, particularly of remote outlying islands and less accessible interior highlands.

National Action

229. There now needs to be a greater recognition of the urgency of the problems of increased urbanisation, particularly in view of the deterioration of the SIDS environments and the growing emergence of pockets of poverty. National governments need to:

- Promote decentralisation of government and outer island development and redeployment of more development resources to rural areas in order to achieve more balance in the sharing of development benefits between rural and urban sectors;
- Develop policies in relation to urban land tenure and use consistent with sustainable development objectives;
- Strengthen physical planning capabilities and introduce measures to improve management of urban resources and services.

Regional Action

230. The common concern of more rapid urban than rural population growth in the region makes the consideration of urban development issues by the heavily populated, land-scarce SIDS more urgent. SIDS can co-operate at the regional level to:

- carry out research on increasing urban inequalities;
- assess the impacts of increasing urbanisation on the physical and human environments of SIDS.

International Action

231. The SIDS call on the international community to support programmes which address the impact of rapid urban growth on unsustainable development in the SIDS.

Education

232. A range of formal and non-formal educational and training issues are relevant to island countries of the Indian and Pacific Oceans in fostering a greater public awareness of sustainable development issues.

233. Along with health, education remains the key mechanism for enhancing the quality of the population as a basis for sustainable development. Education promotes an increased awareness of the physical, social, cultural, and economic environment, and of the individual's role within it. Education also develops skills necessary for the individual to achieve a sustainable livelihood and

to contribute meaningfully to the economic life of society. The acquisition of these skills calls for adequate access to education and training at all levels - primary, secondary and tertiary - provided through both formal and informal channels.

234. That the education and training of young people is a challenge that deserves the highest priority is emphasised by SPREP's report, *The Pacific Way*. The report points to prevailing problems of unacceptably low literacy and low quality of basic education in many Pacific Island countries and the need for urgent remedial action. Furthermore, the need to strengthen the teaching of environmental issues, which presently appear to carry a low priority in the formal education system, is emphasised.

235. Agenda 21, Chapter 36, emphasised the need to promote increased understanding of the close ties between human activities and the environment, through access to information. Universal access to basic education was viewed as essential for promoting this understanding, while suitable training mechanisms and the use of the media have a vital part to play in disseminating information, and promoting a more active public debate.

236. The role of regional institutions in developing curriculum and related material that can be used at the national level is important. In the South Pacific, SPREP has an Education Program and an Education Officer involved in such work.

237. The strengthening of national educational and training mechanisms - with support from regional bodies and the international community at large - is a matter of top level priority. This is essential to facilitate the flow of information on sustainable development issues and to enhance public awareness of the environment. A key requirement is to promote access to, and to improve the quality of basic education. This has particular importance for those Island countries that are currently constrained by low literacy rates, low primary school enrolment, and unacceptably low quality of teaching. Here, the need to raise literacy and numeracy levels is of paramount importance. To facilitate this process, attention needs to be given to designing suitable and relevant curricula. An important aspect is to incorporate sustainable development and environmental issues in the curriculum at the primary level of education.

238. A common need throughout the Island countries of the Asia-Pacific region is to strengthen the teaching of science and mathematics. Greater competence in these fields is essential, not only for opening the way to higher level education, but also for promoting a better understanding of the natural environment and linkages with the development process.

239. In all cases, a review of existing mechanisms for imparting information and building up skills appears to be warranted. New possibilities include strengthening training programmes, with an emphasis on short, in-country and on-site training. These can be particularly effective modalities for the transmission of information on sustainable development and environmental problems and issues. Adult education can be a particularly valuable component of any training program and should be considerably strengthened.

240. Adequate attention should be given to tapping traditional knowledge on the environment, and to foster programs through schools and the media to disseminate such knowledge. Effective mechanisms should also be established to access relevant information in the Pacific Rim countries that may help promote more effective training in sustainable development and environmental fields.

National Action

241. Considerable scope exists for strengthening education and training in the Island countries of the Asia and Pacific region, predominantly to help in the realisation of their human resource potential as well as the imperatives of promoting sustainable and ecologically sound development. A major emphasis should be given to:

- strengthening basic educational facilities (buildings, books, desks, etc.) as a means of raising literacy and numeracy levels;
- developing curriculum material appropriate to SIDS, reflecting the linkages between environmental, social and economic issues in sustainable development;
- increasing opportunities for teacher training;
- reviewing existing educational structures to ensure they efficiently cater for the newly developed curriculum appropriately reflecting the linkages between environmental, social and economic issues for sustainable development of small islands;
- addressing constraints on the participation of women at all levels of education;
- promoting more short term and in-country training initiatives relating to development and the environment and the range of technical skills required to gain technical competence in this field;
- encouraging the use of traditional knowledge and skills in the environment and resource management, including support for traditional apprenticeship systems for imparting such knowledge, and skills.

Regional Action

242. Particularly vital are actions designed to support Island countries through:

- the identification of training needs, and facilitation of mobilisation of resources to meet these needs;
- the coordination of the training activities on sustainable development and environmental issues that are being conducted throughout the region by different organisations; including NGOs;
- an examination of the scope for establishing a network of regional centres to address needs identified in Agenda 21, noting that the UNDP/UNESCO/- UNICEF/AIDAB Basic Education and Life Skills (BELS) Programme is already active in attempting to identify needs and mobilise resources;
- the facilitation of stronger educational and training links with Pacific and Indian Rim countries.

International Action

243. A further strengthening of national education systems can be achieved by continual support through:

- the provision of adequate resources to support the educational work of the relevant regional organisations;
- the provision of financial resources for the upgrading of basic education (language competence and literacy), science and mathematics teaching, and technical training;
- access for SIDS to training programmes and facilities available within the UN System in relation to the achievement of sustainable development.

Health

244. Chapter 6 of the Agenda 21 recognises the close dependency of human health on a healthy environment and provides a list of priority actions. Although the SIDS of this region have implemented relevant activities, the overall improvement in health of their populations continue to decelerate. Further the health conditions of vulnerable groups, such as poor women and children, have actually deteriorated in many cases.

245. The people's state of well-being is the ultimate goal of development and is closely related to their relationships with the environment. Where development stagnates and environment deteriorates, as in crowded urban settlements, people's health also deteriorates.

National Action

246. The SIDS need to formulate social and economic policies that promote healthy development. These should include requirements for:

- socio-environmental impact assessments to explicitly address health in all development projects and policies;
- development projects to have explicit environment and health objectives and outcomes where appropriate;
- promotion of inter-island trade of island foods and revised quarantine and customs requirements;
- regulations where necessary to facilitate such trade, giving greater emphasis to food production for local use;
- strengthening national health information systems to better identify areas of need and vulnerable groups and especially to provide early warning of emerging health problems;
- strengthening national capacity to better evaluate social and environmental outcome of development activities through formulation and use of appropriate indices;
- reviewing resource allocation with the health sector in order to ensure adequate resourcing for public health and health prevention activities;

- strengthening public health education, particularly targeting policy makers, management cadre and community leaders to encourage both healthy personal habits and support for healthy development policies;
- promoting appropriate revision of public health curricula in health training to include environment and development issues;
- supporting and promoting linkages with appropriate traditional medicine and health practices;
- introducing measures, such as provision of information and training, that support women in their role as caregivers;
- instigating basic research on the health effects of kava and traditional medicines and promote wide dissemination of these findings.

247. The SIDS need to take actions to enhance the appropriate development of health workers. These actions include:

- adjusting of existing administrative structure to accommodate local trained health workers status in relation to overseas graduates and mobility of health workers;
- reorientation of health services to the Primary Health Care approach;
- development of health workforce plans and local capabilities for health planning;
- rewarding/remunerating health workers according to merit as measured by appropriate performance indicators;
- providing incentives for training of health workers in management, research and public health;
- developing a national health information system for management;
- developing health research capability, especially health systems research;
- encouraging training, in-country and in the region, of health workers for multiple tasks.

Regional Action

248. At the regional level the SIDS need to co-operate to:

- provide appropriate training programmes on areas of need eg. health management, public health;
- train health workers for the special conditions of the Pacific;
- provide adaptive health research especially health systems research eg health financing;
- standardise training institutions to enhance health worker mobility;
- provide health evaluation and impact assessment capability;

- establish a clearing house for information on health training institutions;
- train and orientate consultants from outside the Pacific and Indian Oceans;
- provide a buffer between the onslaught of health technology and the small islands.

International Action

249. At the international level, action should be taken to:

- pay more attention to malaria, nutrition, drugs, AIDS, maternal and infant health care;
- coordinate the collation and dissemination of information on food contaminants and monitor these where necessary in co-operation with WHO, and also complementing other international action;
- strengthen regional and national formal and informal health training institutions through financial assistance;
- undertake basic research on technology and health problems of SIDS e.g. pharmaceutical efficacy;
- discourage the export to the SIDS of inappropriate products not acceptable in the country of origin;
- modify policies detrimental to small islands human resource development;
- export credible and appropriately adapted training programmes from outside institutions to SIDS;
- encourage use of local and regional experts for consultancies in the SIDS;
- encourage localisation of key health workers and mobility of persons between islands;
- provide scholarships for extramural and summer school training that build towards formal qualifications;
- regulate and control transportation and use of illicit drugs, through strengthening quarantine and promoting public awareness and campaigns on the effects and use of drugs.

Item 5.15 : Environmental Legislation

Basis for Action

250. The absence of specific environmental legislation is a major constraint to sustainable development in many SIDS throughout Indian and Pacific Oceans. Where such legislation exists it is sometimes difficult to administer and enforce. This was clearly stated by the Pacific in their submission to UNCED, *The Pacific Way*. The review of existing legislation has therefore been seen as a high priority.

251. Such a review became an integral part of the preparation of National Environmental Management Strategies or equivalent in a number of Pacific Island countries over the period 1991-1993, with reviews undertaken in the Cook Islands, Federated States of Micronesia, Fiji, Kiribati, Marshall Islands, Niue, Palau, Solomon Islands, Tokelau, Tonga, Tuvalu, Vanuatu and Western Samoa.

252. The reviews have found that there is a large body of legislation in the region which is environmentally relevant, but it is neither consolidated nor comprehensive. The common outcomes of the legal reviews have been:

- recommendations for the reform of environmental law in each country with strong recommendations for the enactment of comprehensive environmental legislation;
- suggestions for further work on particular pieces of legislation and fields of environmental management;
- suggestions on implementation of recommendations recognising:
  - the common problem of a lack of financial resources for the implementation of present legislation; and
  - the lack of its enforcement in some instances, hampered by a lack of training in the environmental offices.
- a highlighting of the need to integrate customary and traditional legal principles with contemporary environmental legislation, especially in the areas of land use management and utilisation of marine resources;
- the value of the legal review process in fostering improved linkages between sections of government, and between government and non-government bodies;
- drafting of environmental legislation and regulations in some SIDS;
- establishing a regulatory structure for environmental impact assessment (EIA) in some SIDS.

253. A Regional Workshop on Strengthening Environmental Legislation in the Pacific Region, held in Apia, Western Samoa, November 1992, reinforced the need for education on environmental law subjects through both regional and regionally-sponsored in-country legal workshops. These reviews have been used as the basis of the following recommendations for SIDS of the Indian and Pacific Oceans.

National Action

254. The legal reviews made a series of recommendations for action taken at the national level. Generally, action at the national level was seen as an internal matter for each government, with the provision of some technical and financial support from external sources for those activities beyond available national resources. Specific major recommendations included:

- increase capacity for environmental law at the national level;

- the need to improve public education;
  - to familiarize local, provincial/state and national bodies with environmental laws already in existence;
  - to facilitate discussion of the value of environmental legislation and standards to the local communities; and
  - to open wider discussion on more culturally appropriate penalties for contravention of laws and regulations.
- the creation in law of appropriate environmental standards and procedures, and their integration into national planning instruments and development projects at an early stage in the design process;
- the need to give Sustainable Development Task Forces or their equivalent legal authority and validity to permit their continued meeting as interdisciplinary and communally representative advisory bodies;
- specific legislation for appropriate environmental impact assessment for both public and private sector development;
- provide adequate resources for enforcement;
- the development of appropriate national, provincial/state and local environmental legislation which reflects needs and incorporates the principles of sustainability;
- the enactment of domestic legislation required for the implementation of the wide range of international environmental Conventions and Agreements directly relevant to SIDS;
- to encourage wide participation including NGOs in the conception of environment laws.

Regional Action

255. Recommendations seen as appropriate for action at the regional level included:

- the drafting of model environmental provisions as a guide for countries, leaving to each SIDS the incorporation of country-specific language to reflect the variety and diversity of national and customary laws and procedures;
- the preparation of environmental law training manuals for both lawyers and others working in the environmental field;
- sponsorship of a series of regional and in-country workshops on environmental law subjects, including:
- to discuss content, notification processes and legal implications of the international and regional environmental Conventions and Agreement relevant to SIDS;
  - *Environmental Conventions and Treaties Workshop* to discuss the content, ratification and legal implications of international and regional environmental conventions and agreements relevant to SIDS;

- *Environmental Impact Assessment Law Workshops* to focus on the generation of adequate legal mechanisms for the implementation of environmental impact assessment, drawing on the expertise of countries in the region;

- *Heritage Law Workshops* to focus on the protection and conservation of places and sites which have cultural, religious or social importance, and artifacts and elements of the natural heritage;

- *Pollution Law Workshops* to address the current lack of regulations on water, land, air and noise pollution, exploring the various legislative and administrative alternatives available for pollution control and the preparation of drafting instructions for adequate legislation and regulations;

- *Civil Enforcement Workshops* to focus on non-criminal enforcement mechanisms particularly appropriate to the region with the development of:

  - administrative, out-of-court, civil penalty and enforcement procedures, and
  - community control mechanisms.

- *Prosecution Workshops* to focus on the prosecution of environment offences and impart some technical expertise on gathering evidence targeted to the police, environmental inspectors and attorneys-general officers;

- *Environmental Mediation Workshops* for the resolution of environmental disputes using alternative techniques more appropriate to those countries in which customary law and practices remain strong.

- explanation of relevant international environmental instruments and Conventions in order to encourage SIDS to accede to them and to implement them properly;

- legal implications of the *Rio Declaration on Environment and Development*, *Agenda 21* and the *Forest Principles* agreed at the Earth Summit in terms of their applicability to and implementation in SIDS;

- support for Environmental Law Offices within regional and subregional organisations.

International Action

256. Agenda 21 (Chapter 39) states that developing countries should be given support for their national efforts to implement international agreements, and to participate effectively in the negotiation of new or revised agreements. This should include financial support and assistance in building up expertise in international law on sustainable development.

257. Given the central importance of environmental law and the implementation of the environmental management strategies as recognised in recent international environmental documents and Conventions, there is a clear role for a range of international donors and agencies in the promotion of environmental legal mechanisms at national, regional and international levels.

Item 6 : Implementation, Monitoring and Review

258. The meeting decided to endorse and recommend the following to the Preparatory Committee for the Global Conference on the Sustainable Development of Small Island Developing States, as the basis for implementation, monitoring and review of the action programme for small island developing states.

Basis for Action

259. Evidence of progress and proposals for the implementation, monitoring and review of any action programme for the sustainable development of small island developing states (SIDS) will be essential to the success of the Global Conference on the Sustainable Development of Small Island Developing States. It will be a measure of the commitment countries have to the implementation of Agenda 21 and the political will to take the necessary steps towards sustainable development.

260. The implementation of necessary action at all levels depends greatly on the ability of SIDS to identify their priorities for environmental management and sustainable development and to actively integrate environmental strategies and goals within the development planning process. Regional action based on priorities, identified in the national strategies and plans of many SIDS in the Indian and Pacific Oceans, requires better coordination of effort, stronger regional organisations, and improved access to financial and technical resources. The cooperation and partnership of industrialised countries is a prerequisite in fostering the sustainable development of SIDS. In line with principle 6 of the Rio Declaration, the UN System and international community should give special priority to the needs of SIDS since they are amongst the most environmentally vulnerable.

261. The SIDS will need to formulate action programmes which must be put in place in the pursuit of sustainable development. Such actions, which are to be pursued at the national, regional and international levels, should be well coordinated and mutually reinforcing. Listed below are broad categories of actions or measures incorporating formulation, implementation, monitoring and review of policies and strategies at all levels. Some of these measures may require legislative actions at the national, regional and international levels. Also projected in the proposed actions are increased resource flows from the international community either directly to the SIDS, and/or indirectly via the regional bodies which serve them.

National Action

262. National action and policies to implement sustainable development in SIDS should be based on commitment at the highest possible level to the integration of environmental and developmental issues in decision-making, including through:

- prioritisation of national strategies in-country and more effective links to national budgetary processes;

- regular nation-wide reviews of national development and environmental plans;

- integration of strategies and plans for environmental management into the national development planning and decision-making process;

- integration where appropriate of traditional knowledge, culture and values into national sustainable development policies and programs;

- consultation with local government, community groups and relevant non-government organisations and support for their involvement in program design and delivery;

- development and adoption of appropriate economic and social policies and measures for the implementation of the principles of Sustainable Development in SIDS;

- development, adoption and enforcement of appropriate legislative and regulatory measures for the implementation of Sustainable Development in SIDS;

- establishment and strengthening of national institutions, particularly those concerned with human resource development the environment and women, necessary for the implementation of Sustainable Development in SIDS;

- adoption and use of appropriate science and technology consistent with Sustainable Development objectives;

- improving understanding at the political and public levels, including through formal and non-formal education and training programmes, of the national and international policies and programs required to achieve Sustainable Development in SIDS;

- national commitment to the development and strengthening of regional subregional organisations which assist in the implementation of Sustainable development in SIDS.

Regional and Subregional Action

263. To implement, monitor and review regional and, where appropriate, sub-regional approaches to sustainable development, regional organisations and/or sub-regional organisations should:

- assist SIDS to participate in international negotiations on sustainable development issues relevant to their region;

- assist SIDS to meet their commitments relating to international and regional instruments on sustainable development;

- assist SIDS to build their capacity to implement the principles of sustainable development;

- support appropriate regional education and public awareness programmes;

- provide adequate technical advice and assistance to SIDS;

- promote co-operation amongst SIDS in the development of marketing strategies;

- facilitate the involvement of NGO's in the development and implementation of regional sustainable development programmes;

- co-ordinate assistance to SIDS on development and application of environmental law.

International Action

264. To implement, monitor and review sustainable development for SIDS it will be necessary to:

- provide improved access to financial resources for the implementation of measures that will enable SIDS successfully to pursue sustainable development;

- ensure that development assistance to SIDS is clearly supportive of national objectives and priorities;

- provide support for agencies and programmes which deal with the sustainable development of SIDS;

- ensure that regional and sub-regional organisations have the technical and financial capacity to assist SIDS to implement sustainable development;

- execute, where appropriate, regional and sub-regional programmes through the relevant regional and sub-regional organisations so as to optimise the use of resources consistent with national priorities;

- encourage private capital flows to SIDS. This effort would be assisted by SIDS' policies which foster private sector growth;

- improve co-ordination among regional and sub-regional organisations to ensure that programmes and projects are mutually supportive and effective in promoting sustainable development, and are consistent with international agreements (eg. Agenda 21);

- encourage co-operative regional approaches to sustainable development problems of SIDS which are more effectively handled at the regional level;

- ensure that the various agencies and programmes of the UN system and other international organisations co-ordinate their activities and co-operate with regional and sub-regional organisations effectively to maximise the use of available international assistance;

- ensure that the particular concerns of SIDS are taken into account in the development of international instruments for sustainable development;

- facilitate access to sound, efficient and appropriate technology to assist SIDS to achieve sustainable development;

- encourage developed countries to inform and educate their communities, in particular the private sector, on the sustainable development needs and priorities of SIDS;

- encourage the international community to take account of the special capacities and vulnerabilities of SIDS in the development of their international economic policies; and

- ensure that information on international sustainable development issues is disseminated clearly, rapidly and accurately to SIDS.

List of Participants — *Annex 1*

SPREP Members and Indian Ocean Governments

AUSTRALIA

Ms Victoria OWEN Tel: (0616) 261 2312
Director Fax: (0616) 261 2594
Environment Multilateral Section
Department of Foreign Affairs and Trade
Australia

H.E. Mr. Peter SHANNON Tel: (0678) 22 777
Australian High Commissioner Fax: (0678) 23 948
Australian High Commission Office
Port Vila
Vanuatu

Ms Corinne TOMKINSON Tel: (01-212) 421 6910
Australian Mission to the United Nations
New York

Mr George FRASER Tel: (0616) 261 2642
Environment Multilateral Section Fax: (0616) 261 2594
Department of Foreign Affairs and Trade
Australia

Mr Lou LANGFORD Tel: (0616) 276 4918
Multicountry Programme Manager Fax: (0616) 276 4720
Australian International Development
Assistance Bureau (AIDAB)
Australia

Mr Paul GARRETT Tel: (0616) 274 1541
Policy Liaison Branch
Department of Environment Sport and Territories
Australia

Mr Andrew GOLEDZINOWSKI Tel: (0678) 22 777
First Secretary Fax: (0678) 23 948
Australian High Commission
Port Vila
Vanuatu

Mr Lindsay SMITH Tel: (0679) 312 844
Counsellor (Public Affairs) Fax: (0679) 300 900
Australian Embassy
Dominion House
Suva
Fiji

COOK ISLANDS

Mr Tai MANUELA Tel: (0682) 29 511
Director Fax: (0682) 21 247
Ministry of Planning & Economic Development
PO Box 41
Rarotonga
Cook Islands

Mr Wayne KING Tel: (0682) 21 256
Cook Islands Conservation Service Fax: (0682) 22 256
Tuanga Taporoporo
PO Box 371
Rarotonga
Cook Islands

FEDERATED STATES OF MICRONESIA

Mr John A. MANGEFEL Tel: (0691) 320 2641
Deputy Secretary Fax: (0691) 320 2933
Department of External Affairs
P.S. 123
Palikir, Pohnpei 96941
Federated States of Micronesia

Mr Nachsa SIREN
Environmental Health Coordinator
Department of Health Services
P.S. 70
Palikir, Pohnpei 96941
Federated States of Micronesia

FIJI

Mr Epeli NASOME Tel: (0679) 211 545
Acting Principal Scientific Officer Fax: (0679) 303 515
Department of Environment
Suva
Fiji

Mr Jiten MANGAL Tel: (0679) 211 447
Economic Planning Officer Fax: (0679) 304 809
Central Planning Office
Suva
Fiji

FRANCE

Mr Olivier LACROIX Tel (0678) 22 353
Counsellor
French Embassy
Port Vila
Vanuatu

GUAM

Mr Fred CASTRO Tel: (0671) 646 8864
Administrator Fax: (0671) 646 9402
Guam Environmental Protection Agency
IT&E Harmon Plaza D-107
Harmon
Guam 96911

KIRIBATI

Mr Nakibae TEUATABO Tel: (0686) 21 099
Secretary for Environment & Fax: (0686) 21 120
Natural Resources Development
Ministry of Environment &
Natural Resources Development
PO Box 64, Bairiki
Tarawa
Republic of Kiribati

/...

Mrs Teekoa I. IETAAKE Tel: (0686) 21 342
Assistant Secretary for Foreign Affairs and International Trade Fax: (06860 21 466
Ministry of Foreign Affairs and International Trade
PO Box 68, Bairiki
Tarawa, Republic of Kiribati

MALDIVES

Mr Hussain SHIHAB Tel: (0960) 323 825
Director Fax: (0960) 327 351
Environmental Affairs
Ministry of Planning & Environment
Gihaazee Building
Male - 20 - 05
Maldives

MARSHALL ISLANDS

Mr Kasuo HELGENBERGER Tel: (0692) 625 3035
General Manager Fax: (0692) 625 5202
RMI Environmental Protection Authority
PO Box 1322, Majuro
Republic of Ma.shall Islands 96960

Ms Elizabeth HARDING
Legal Counsel
RMI Environmental Protection Authority
PO Box 1322, Majuro
Republic of Marshall Islands 96960

MAURITIUS

Mr Raj H. PRAYAG Tel: (0230) 212 6080
Director Fax: (0230) 212 6671
Department of Environment
Ministry of Environment and Quality of Life
2nd Floor Ken Lee Tower
Barrack Street
Port Louis
Mauritius

NEW ZEALAND

Ms Priscilla WILLIAMS Tel: (0644) 472 8877
Director Fax: (0644) 472 8571
Environment Division
Ministry of External Relations and Trade
Wellington
New Zealand

Mr Kevin CLARK Tel: (0644) 473 2145
Manager of Appraisal & Evaluation Support Unit Fax: (0644) 473 9311
Development Cooperation Division
Ministry of Extenal Relations & Trade
Wellington
New Zealand

Mr Keith MORRILL Tel: (0644) 472 8877
Environment Division Fax: (0644) 472 8571
Ministry of External Relations and Trade
Wellington
New Zealand

NIUE

Mr Bradley PUNU Tel: (0683) 4017
Environment Officer Fax: (0683) 4232
Community Affairs Office
Government of Niue
PO Box 67
Niue

PAPUA NEW GUINEA

Mr John WILMOT Tel: (0675) 271 763
Scientific Adviser Fax: (0675) 271 900
Department of Environment & Conservation
PO Box 6601
Boroko
Papua New Guinea

Mr Peter WAIENG Tel: (0675) 271 325
Foreign Service Officer Fax: (0675) 254 886
Department of Foreign Affairs
Post Office Wards Strip
Waigani
Papua New Guinea

SEYCHELLES

Mr Peter SINON Tel: (0248) 24 688
Economist Fax: (0248) 14 845
Ministry of Environment
Economic Planning and External Relations
Mahe
Seychelles

SOLOMON ISLANDS

Mr Moses BILIKI Tel: (0677) 21 521
Chief Environment & Conservation Officer Fax: (0677) 21 245
Environment & Conservation Division
Ministry of Natural Resources
PO Box G24
Honiara
Solomon Islands

Mr Transform AQORAU
Principal Legal Adviser
Ministry of Foreign Affairs
PO Box G10
Honiara
Solomon Islands

TOKELAU

Mr Mose PELASIO Tel: (0685) 20 822
Fisheries Officer Fax: (0685) 21 761
Office of Tokelau Affairs
PO Box 865
Apia
Western Samoa

TONGA

Mr Sione L. TONGILAVA — Tel: (0676) 23 210
Secretary for Lands, Survey and Natural Resources — Fax: (0676) 23 216
Ministry of Lands, Survey and Natural Resources
PO Box 5
Nuku'alofa
Tonga

Ms Netatua PRESCOTT
Ecologist and Environmentalist
PO Box 5
Nuku'alofa
Tonga

TUVALU

Mr Alefaio SEMESE — Tel: (0688) 843
Environment Officer — Fax: (0688) 819/820
Office of the Prime Minister
PO Box 37
Funafuti
Tuvalu

Ms Lina PETAIA — Tel: (0683) 839/729
Assistant Secretary for Foreign Affairs — Fax: (0683) 843
Ministry of Foreign Affairs& Economic Planning
Vaiaku, Funafuti
Tuvalu

UNITED STATES OF AMERICA

Mr Granville SEWELL — Tel: (01-202) 647 9098
Global Change Office — Fax: (01-202) 647 1106
United States Department of States
Washington D.C. 20520
United States of America

Mr Richard B. MIEREMET — Tel: (0301) 713 3078
International Affairs Specialist — Fax: (0301) 713 4263
U.S. Department of Commerce
National Oceanic & Atmospheric Administration
NOAA/NOS/IA
SSMCIV/WS 13424
1305 East-West Highway
Silver Spring, MD 20910
United States of America

Ms Susan WARE — Tel: (01-202) 482 6196
National Oceanic & Atmospheric Administration — Fax: (01-202) 482 4307
U.S. Department of Commerce
Washinton D.C. 20230
United States of America

VANUATU

H.E. Mr Robert VAN LIEROP — Tel: (0212) 926 3311
Ambassador & Permanent Representative to the United Nations — Fax: (0212) 926 4131
Vanuatu Mission to the United Nations
New York, N.Y.

Vanuatu (cont'd)

Mr Ernest BANI — Tel: (0678) 25 302
Principal Environment Officer — Fax: (0678) 23 142
Port Vila

Mr Gorvan McGANN — Tel: (0678) 22 605
Department of National Planning
Port Vila

Mr Ian RECTOR
National Disaster Management Office
Port Vila

Mr Kalfau KALORIS — Tel: (0678) 22 347
Department of Foreign Affairs — Fax: (0678) 23 142
Port Vila

Mr George BORUGU
National Planning and Statistics Office
Port Vila

WESTERN SAMOA

Mrs Faamausili L. TUIMALEALIIFANO
Director of Lands, Survey & Environment — Tel: (0685) 22 481 — Fax: (0685) 23 176
Department of Lands, Survey and Environment
PO Private Mail Bag
Apia
Western Samoa

Mr Samuelu SESEGA — Tel: (0685) 26 681
Principal Environment Officer — Fax: (0685) 23 176
Department of Lands, Survey and Environment
PO Private Mail Bag
Apia
Western Samoa

Observer Governments

GOVERNMENT OF ANTIGUA & BARBUDA

Dr. John W. ASHE — Tel: (01-212) 541 4117
Counsellor — Fax: (01-212) 757 1607
Permanent Mission of Antigua & Barbuda to the U.N.
610 Fifth Avenue, Suite 311
New York
New York 10020

GOVERNMENT OF BARBADOS

Ms Teresa A. MARSHALL — Tel: (01-212) 867 8431
Deputy Permanent Representative — Fax: (01-212) 986 1030
Permanent Mission of Barbados to the United Nations
800 Second Avenue
18th Floor, New York
New York 10017

Observer Organizations

CARIBBEAN COMMUNITY SECRETARIAT (CARICOM)

Mr Herman ROHLEHR Tel: (011) 592 2 692 81
Chief, Industry Fax: (011) 592 2 573 41
Technology, Environment & Tourism
Caribbean Community Secretariat
Bank of Guyana Building
PO Box 10827
Georgetown, Guyana

COMMONWEALTH YOUTH PROGRAMME (CYP)

Mr Hannington G. ALATOA Tel: (0679) 300 145
Regional Director Fax: (0679) 300 863
Commonwealth Youth Programme
South Pacific Centre
c/- University of the South Pacific (USP)
Suva, Fiji

EUROPEAN COMMUNITY (EC)

Mr Edwin VOS Tel: (0678) 22 501
European Community Fax: (0678) 23 282
CEC Delegation for Pacific
Suva, Fiji

FOOD AGRICULTURE ORGANISATION OF THE UNITED NATIONS (FAO)

Mr Tang HON TAT Tel: (0679) 300 432
Project Coordinator Fax: (0679) 305 212
FAO/UNDP South Pacific Forestry Development Programme
29 Pender Street
UNDP Private Mail Bag
Suva
Fiji

FORUM FISHERIES AGENCY (FFA)

Mr Fred AMOA Tel: (0677) 21 124
Legal Officer Fax: (0677) 23 995
Forum Fisheries Agency
PO Box 629
Honiara
Solomon Islands

Mr Lui BELL
Assistant Research Coordinator
Forum Fisheries Agency
PO Box 629
Honiara
Solomon Islands

FORUM SECRETARIAT

Dr. William SUTHERLAND Tel: (0679) 312 600
Deputy Secretary General (Programme) Fax: (0679) 302 203
Policy & Services
Forum Secretariat
GPO Box 856, Suva
Fiji

Mr David ESROM
Environment Liaison Officer
Forum Secretariat
GPO Box 856
Suva
Fiji

SOUTH PACIFIC ACTION COMMITTEE FOR HUMAN ECOLOGY & ENVIRONMENT (SPACHEE)

Mr Isoa KOROVULAVULA Tel: (0679) 212 465
Coordinator Fax: (0679) 300 863
South Pacific Action Committee for Human Ecology & Environment (SPACHEE)
c/- University of the South Pacific
PO Box 1168
Suva
Fiji

SOUTH PACIFIC APPLIED GEOSCIENCE COMMISSION (SOPAC)

Mr Jim EADE Tel: (0679) 381 377
Deputy Director Fax: (0679) 370 040
South Pacific Applied Geoscience Commission (SOPAC)
SOPAC Technical Secretariat
Privail Mail Bag GPO
SuvA
Fiji

SOUTH PACIFIC COMMISSION (SPC)

Dr. Sitaleki FINAU Tel: (0687) 26 20 00
Health Coordinator Fax: (0687) 26 38 18
South Pacific Commission
BP D5
Noumea Cedex
New Caledonia

Dr. Gerald HABERKORN
Demographer
South Pacific Commission
BP D5
Noumea Cedex
New Caledonia

UNITED NATIONS CENTRE FOR HUMAN SETTLEMENTS (Habitat) (UNCHS)

Mr Ian McKEE Tel: (0254) 230 800/520 600
Senior Human Settlements Advisor Fax: (0254) 226 473/226 479
Ag. Coordinator Asia and Pacific
Technical Cooperation Division
United Nations Centre for Human Settlements (Habitat)
PO Box 30030
Nairobi
Kenya

/...

UNITED NATIONS DEPARTMENT OF HUMANITARIAN AFFAIRS - SOUTH PACIFIC PROGRAMME OFFICE (DHA-SPPO)

Mr Luc VROLIJKS Tel: (0679) 303 239
Technical Adviser Fax: (0679) 304 942
United Nations Department of Humanitarian Affair
South Pacific Programme Office (DHA-SPPO)
c/- UNDP
Private Mail Bag
Suva
Fiji

UNITED NATIONS DEVELOPMENT PROGRAMME (UNDP)

Ms Kristi RAGAN Tel: (0679) 312 500
Assistant Resident Representative Fax: (0679) 301 718
United Nations Development Programme
Suva
Fiji

UNITED NATIONS EDUCATIONAL SCIENTIFIC & CULTURAL ORGANISATION (UNESCO) AND ITS INTERGOVERNMENTAL OCEANOGRAPHIC COMMISSION (IOC)

Mr Trevor SANKEY Tel: (0685) 24 276
Science Adviser Fax: (0685) 22 253
UNESCO Office for the Pacific States
PO Box 5766
Matautu-uta
Apia
Western Samoa

UNITED NATIONS FUND FOR POPULATION ACTIVITIES (UNFPA)

Mr Faysal ABDEL-GADIR Tel: (0679) 312 500
UNFPA Country Director Fax: (0679) 301 718
(South Pacific)
United Nations Population Fund (UNFPA)
c/o UNFPA/UNDP
Private Mail Bag
Suva
Fiji

UNITED NATIONS ECONOMIC AND SOCIAL COMMISSION FOR ASIA-PACIFIC (ESCAP)

Mr Savenaca SIWATIBAU Tel: (0678) 23 458
Head Fax: (0678) 29 010
ESCAP Pacific Operations Centre (EPOC)
Port Vila
Vanuatu

Mr Brij KISHORE Tel: (0662) 282 9161
Regional Adviser on Environment Fax: (0662) 282 9602
Management
Economic and Social Commission for Asia-Pacific (ESCAP)
United Nations Building
Rajdamnern Avenue
Bangkok 10200
Thailand

Mr Mario YARI
Associate Economic Affairs Officer
Economic and Social Commission for Asia-Pacific (ESCAP)
United Nations Building
Rajdamnern Avenue
Bangkok 10200
Thailand

UNITED NATIONS SECRETARIAT

Mr Kevin HILL Tel: (212) 963 5739
United Nations Department for Fax: (212) 963 5935
Policy Coordination
& Sustainable Development
United Nations Plaza
New York, N.Y. 10017
United States of America

Dr. Peter B. CORBIN Tel: (212) 963 5096
United Nations Department for Development
Support and Management Services (DDSMS)
United Nations Plaza
New York, N.Y. 10017
United States of America

UNIVERSITY OF THE SOUTH PACIFIC (USP)

Dr. Jenny BRYANT Tel: (0679) 313 900
SPREP Focal Point Fax: (0679) 301 487
University of the South Pacific
PO Box 1168
Suva
Fiji

Dr. Rajesh CHANDRA Tel: (0679) 313 900
Director, Planning & Development Fax: (0679) 302 809
University of the South Pacific
PO Box 1168
Suva
Fiji

Dr. Teny TOPALIAN Tel: (0679) 313 900
University of the South Pacific Fax: (0679) 302 409
PO Box 1168
Suva
Fiji

WORLD HEALTH ORGANISATION (WHO)

Dr. Giuseppe CUBONI Tel: (0678) 22 793
WHO Country Liaison Officer Fax: (0678) 22 691
for Vanuatu
World Health Organization (WHO)
PO Box 177
Port Vila
Vanuatu

WORLD WIDE FUND FOR NATURE (WWF) INTERNATIONAL

Mr Peter RAMSHAW Tel: (0612) 247 6300
World Wide Fund for Nature Fax: (0612) 247 8778
(WWF) International
South Pacific Programme
Level 10, 8-12 Bridge Street
Sydney, NSW 2000
Australia

/...

Mr Hidenori KUSAKARI
World Wide Fund for Nature (WWF) International
South Pacific Programme
Level 10, 8-12 Bridge Street
Sydney, NSW 2000
Australia

WORLD METEOROLOGICAL ORGANISATION (WMO)

Mr Henry K. TAIKI
Director
World Meteorological Organisation (WMO)
Vanuatu Meteorological Service
PMB 054
Port Vila
Vanuatu

THE FOUNDATION FOR THE PEOPLES OF THE SOUTH PACIFIC INC. (FSP)
PO Box 951 Tel: (0678) 22 915
Port Vila Fax: (0678) 24 510
Vanuatu

Ms Karen PRESTON
Assistant Director
FSP Country
Port Vila

Ms Kathy FRY
Representative
PEP Project
Port Vila

Mr Stephen WYATT
Representative
Environmental Forestry Programme
Port Vila

SPREP Secretariat

PO Box 240 **Tel:** **(0685) 21 929**
Apia **Fax:** **(0685) 20 231**
Western Samoa

Dr. Vili A. FUAVAO
Director

Mr Gerald MILES
Sustainable and Development Officer

Ms Neva WENDT
Team Leader/National Environmental Management Strategy (NEMS)

Ms Malama HADLEY
Personal Assistant to Director

Ms Saunoa MATA'U
Conference Assistant

Resource Personnel

Dr. Bob THISTLETHWAITE **Tel:** **(0617) 878 3124**
Environmental Management Adviser **Fax:** **(0617) 878 3124**
263 Chapel Hill Rd.
Chapel Hill
Brisbane, Q. 4069
Australia

Mrs Suliana SIWATIBAU **Tel:** **(0678) 23 458**
Environment/Development Adviser **Fax:** **(0678) 29 010**
Port Vila
Vanuatu

South Pacific Regional Environment Programme (SPREP)

Annex 2

Regional Technical Meeting for Indian and Pacific Oceans
Port Vila, Vanuatu, 31 May - 4 June 1993

Input to the Global Conference on the Sustainable Development of Small Island Developing States

AGENDA

Opening Address

Election of Office Bearers

1. **Adoption of the Agenda**

2. **Summary of Preparations for GCSDSIDS and Summary of Recommendations for Consideration**

3. **Overview of the Special Problems of Small Island States:**

   - current trends in socio-economic development
   - the nature and magnitude of specific vulnerabilities of small island developing states, including specific indicators of vulnerability and
   - prospects, constraints and future options for their sustainable development.

4. **Building Blocks for Sustainable Development:**

   - Agenda 21, National Environmental Management Strategies (NEMS) and plans

5. **Priority Areas for Sustainable Development of Islands**

   Management of Environmental Problems

   5.1 climate change and sea level rise

   5.2 natural and environmental disaster preparedness

   5.3 environmentally sound management of wastes

/...

Management of resources

5.4 coastal and marine resources

5.5 freshwater resources

5.6 land resources

5.7 energy resources

5.8 tourism resources

5.9 biodiversity resources

Capacity building

5.10 national institutions and administrative capacity

5.11 national institutions and technical cooperation

5.12 regional transport and communications systems

5.13 science and technology

5.14 human resources development, including education, training, health and population

5.15 environmental legislation

6. Implementation, Monitoring and Review

- national implementation, including national capacity building
- regional implementation, including a review of relevant regional institutional arrangements and, where appropriate, recommendations for improvement
- international implementation, monitoring and review of the recommendations emerging from the above points including the following:
  - review of the responsiveness of international institutional arrangements to the sustainable development of small island developing states and, where appropriate, recommendations for their improvement
  - recommendations for monitoring and follow-up within the United Nations system

---